MAY, 1955

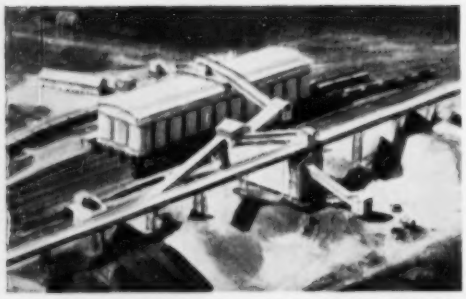
Commercial Fertilizer

and PLANT FOOD INDUSTRY

Three of the A.A.C. Co's electrically-operated draglines at work at our phosphate mines in Central Florida. Bucket capacities range from 9½ to 17 cubic yards. The 17-yard draglines with their 175-foot booms each weigh more than a million and a half pounds and can move 35,000 tons of material in 24 hours. From these rock deposits flow a continuous stream of high quality phosphate rock, assuring a dependable source of supply of AA QUALITY phosphorus products, see list below.

AA Quality...

for over 85 years a symbol of quality and reliability



From the air—wet rock storage and drying plant, with dry rock storage silos in background. These silos, 29 in number, have a total capacity of 40,000 tons of dried rock. Under the silos are four runways where 40 railroad cars can be loaded at a time.

principal AA QUALITY products

All grades of Florida Pebble Phosphate Rock
AA QUALITY Ground Phosphate Rock
All grades of Complete Fertilizers **Superphosphate**
Gelatin **Bone Products** **Salt Cake** **Ammonium Carbonate**
Sulphuric Acid **Fluosilicates** **Insecticides and Fungicides**
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THE AMERICAN AGRICULTURAL CHEMICAL COMPANY

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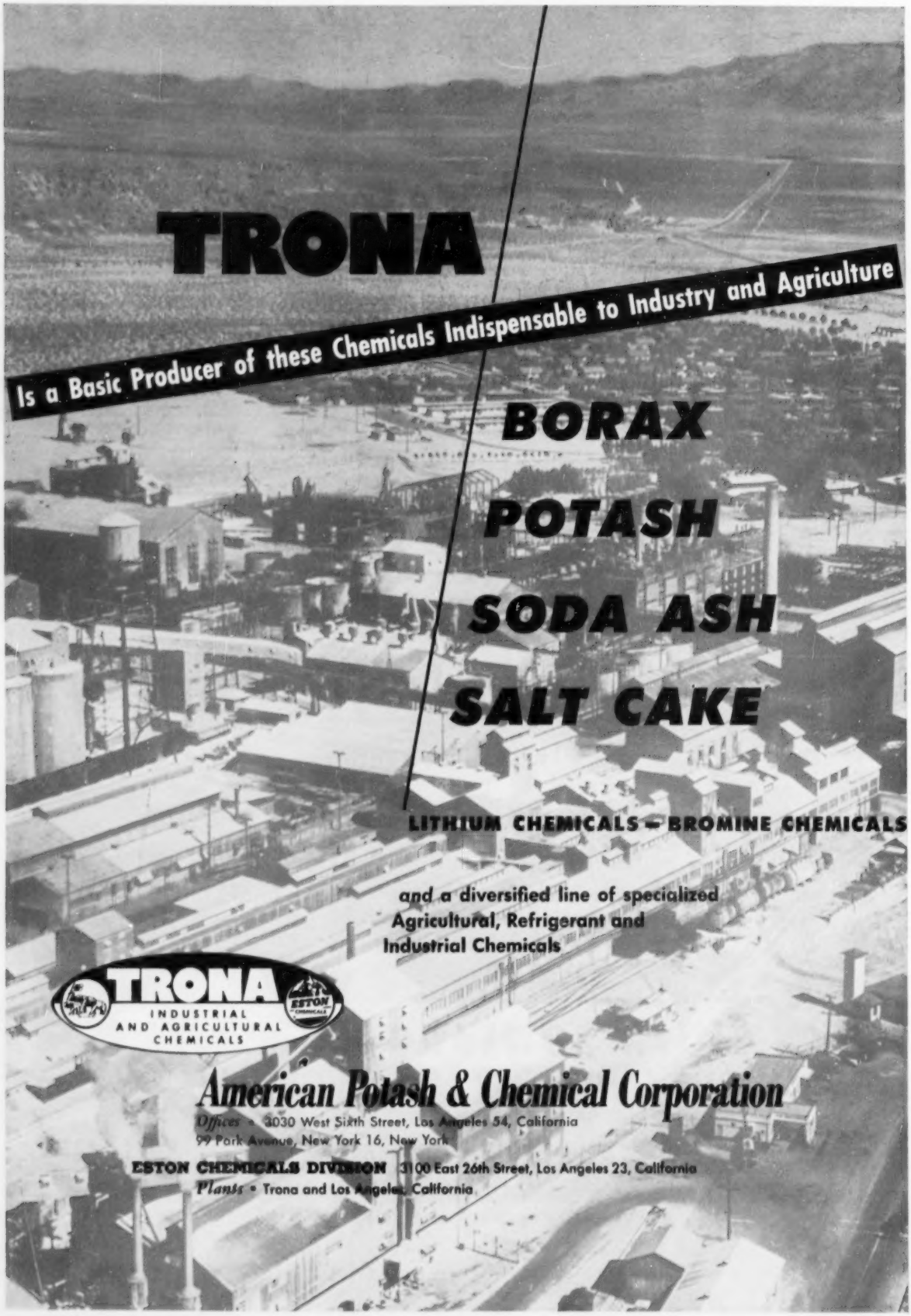
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Is a Basic Producer of these Chemicals Indispensable to Industry and Agriculture
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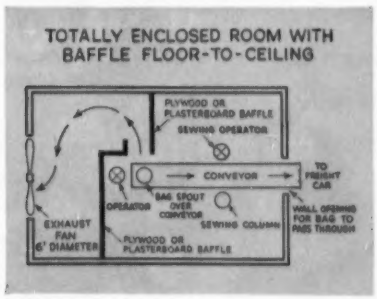
A PHOSPHATE PRODUCER was compelled to wire-tie his Multiwalls at high cost because his product corroded the equipment needed for a sewn closure.

Union's Packaging Service Department redesigned his plant layout, relocated the exhaust fan and conveyor, and built baffles, as shown in the diagram. Change-over expense was less than $100. The processor then was able to install sewing equipment which reduced both bag and packing costs and produced a better package.



Are you making the most of your Multiwalls? Union packaging engineers will survey your present bagging system and make practical recommendations. It's part of Union's regular service to all Multiwall users.

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Commercial Fertilizer
and PLANT FOOD INDUSTRY

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Contents

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Commenting Freely

Fascinating things cross an editor's desk. For instance: private insurance companies are considering plans to compete directly with the U. S. Government with insurance against crop failure, on which the Government has had a monopoly for lo these many years. They will decide about it this month.

National Cotton Council speakers made a plea at the regional conference for some way to pre-digest the mass of complex information that goes out to vocational ag teachers. So much data, in fact, they just can't keep up with it. Perhaps a "digestion center" is the answer . . . perhaps industry and science could be induced to simplify.

Portugal is setting an example to other nations by its organized promotion of fertilizer, as part of a six year development plan. Loans to manufacturers, equalization of import prices, lower power rates, subsidies to farmers. India is doing a good job, too—but I don't believe it is as detailed as this.

Industry is too seldom appreciated in its own home region, but that isn't true of the phosphate folks and their neighbors in Florida. For nine years Mulberry County has held a six-day Phosphate Fair, which is quite an event.

Northwestern Tech has found out how to extract vitamin B-12 for livestock feed from fertilizer, without robbing the plant food of essential elements. They have a pilot plant running successfully, and expect to go into commercial production soon.

You get the feeling from items of this sort that things are really happening in the broad field our industry serves.

What do we know about your business?

When you have Fertilizer Plant needs

Extensive research and investigation of *all* the facts are necessary to make the building of a fertilizer plant economically sound. Many years of experience in the fertilizer industry have made Harte engineers cognizant of the over-all picture to be considered in fertilizer plant design. Realizing that certain fundamentals must be followed while specializing the design of each plant, all possible facts are studied and adapted to produce a sound, enduring investment.

If you plan to build a fertilizer mixing plant, or an associated plant, the Harte organization of specialists can handle your complete job or any part, from original design to operating plant. Under the Harte System all steps — site study, planning, architectural, engineering, purchasing, construction management — are integrated, assuring smooth-working continuity. Assuring a saving in time and money. In fertilizer plant planning there's no substitute for experience. Call in the Harte organization for a discussion of your plans. There's no obligation.

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Created for you by The Men behind

The man from St. Regis is really many men with many brief cases. *These* 8 brief cases are symbolic of 8 groups of multiwall technical specialists, engaged in never-ending study and research to produce better multiwalls and lower packaging costs. These men are behind the man from St. Regis.

You can tap the knowledge and resources of our bag engineering staff, and at the same time be assured of quality through St. Regis' integrated operation . . . of service through its multi-plant facilities.

The adjoining page opens the brief case marked BAG CLOSURES. Read the story of a better and more economical bag. Other interesting brief cases will be opened as the months go by . . . ask the man from St. Regis.

...The Man from St. Regis

...a NEW END CLOSURE

to give you a better bag and lower packaging costs!

THIS new closure combines Rayon Thread and Flat Tape . . . to reduce your per-thousand bag cost.

In cooperation with leading rayon manufacturers, St. Regis has perfected several threads for use with standard bag sewing equipment. The new thread, coupled with the development of Flat Tape by St. Regis, creates a totally new type of closure.

STRONGER CLOSURE

This development combines the greater strength of Rayon Thread with Flat Tape, which can be completely bonded to the multiwall bag. Rayon Thread has high tensile strength, stretch, and shock resistance. It resists the corrosive action of chemicals, and withstands relatively high packing temperatures.

UNIFORM PROPERTIES

Rayon, like the paper of multiwalls, is produced from cellulose fibers. Therefore, like the multiwall, its qualities can be closely controlled and predicted. Microscopic analysis of the fibers demonstrates this uniformity and control.

BETTER LOOKING

This method of closure gives your package a new look—increases its advertising values. Flat Tape, matching in color and texture the body of the bag, offers an excellent printing surface. And tougher, stronger Rayon Thread can be sewn with finer needles, leaving smaller needle holes.

MORE ECONOMICAL

Rayon's greater tensile strength increases mileage, gives more closures per pound. Smaller needle holes with rayon mean less siftage. With Flat Tape and Rayon Thread you get a better closure, a better package at a lower cost.

Ask the man from St. Regis about the new St. Regis end closure. Call your nearest St. Regis office or write:

MULTIWALL PACKAGING DIVISION

ST. REGIS PAPER COMPANY

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JUST AROUND THE CORNER *by Vernon Mount*

ECONOMICS AND POLITICS make strange bedfellows. There are plenty of policies in Washington which are obviously unsound from an economic point of view, but equally obviously good politics. The Department of Commerce is bound to know that the merger of small companies brings economies that result in better prices, better quality - and usually greater employment. The Department of Agriculture must be aware that a tremendous number of farmers would fare better if they pooled their resources and their land for mechanized operation, or went to work in town.

BUT NOBODY DARES SAY THESE THINGS. Any politician suggesting the economic wisdom of certain mergers would find himself called a Communist, at the very least. It is all right for labor unions to join forces, but when business wants to do so the Department of Justice is brought onto the scene, with sirens blowing and full steam on the throttle.

MARGINAL PRODUCERS, therefore,die off for lack of helpful attitudes in Government...for fear the name of Free Enterprise be besmirched. The truth is, despite all the new Administration has tried to do, we still find enterprise far from free, and badly hamstrung by the overhanging sword of paternal frowns from the District of Columbia.

Yours faithfully,

Vernon Mount

proven material handling power

with TORQUE CONVERTER DRIVES

6 PAYLOADER TRACTOR SHOVELS

FRONT WHEEL DRIVE

MODEL HA — Completely new model — twice the digging, carrying and lifting capacity. Exclusive 40 degree bucket break-out at ground level. Digs, carries, dumps and spreads bulk materials — indoors and outdoors. Unloads box cars of bulk materials. 18 cu. ft. bucket capacity.

MODEL HAH — a larger front-wheel-drive model with 24 cu. ft. bucket capacity. Large, 12"00 x 24 inch pneumatic tires on drive wheels give tremendous traction on or off pavement. Rear-wheel power steer insures easy operation and fast maneuvering in close-quarters.

REAR WHEEL DRIVE

MODEL HFC — This "PAYLOADER" with 1 cu. yd. bucket capacity is a popular, well-proven model especially for outdoor use. Rear-wheel-drive enables it to dig and grade as well as load trucks, carry and stockpile. Travel speeds up to 19 m.p.h.

MODEL HFHC — This extra high-lift "PAYLOADER" can dump its loads over bin edges up to 11½ feet high. Especially popular for loading and handling coal and other light materials into high trucks and wherever high lift and long reach are desirable.

FOUR WHEEL DRIVE

MODEL HM — This pioneer 4-wheel-drive tractor-shovel with 2 cu. yd. bucket is the largest in the "PAYLOADER" line, with an enviable reputation in construction, raw materials and manufacturing industries. Rear-wheel power-steer makes it maneuverable and easy to handle.

MODEL HR — Provides the many advantages of 4-wheel-drive in a smaller machine. This 1 1/3 cu. yd. machine has proven as popular as the bigger HM and has the same features, including 4 speeds both forward and reverse and rear wheel power steer.

3 PAYLOADER TRACTORS

MODEL TM — A big, 4-wheel-drive tractor with 15,000 lbs. drawbar pull. Has effective traction to work on pavement, snow, sand and mud. Used for switching and spotting cars — walks easily across tracks. Can be equipped with railroad couplers, air brake control, etc.

MODEL TU-90 — Another 4-wheel-drive tractor with power steer. Pushes or pulls in either direction. Only 5 feet high; 12 feet long. Will handle large aircraft easily — has 9,000 lbs. drawbar pull.

MODEL TC-60 — A powerful, compact tractor with 6,000 lbs. drawbar pull, yet less than 10 feet long. Rear wheel drive on dual tires; front-wheel power-steer; speeds up to 17 mph.

Full-reversing transmissions plus torque converter drive feature all these famous "PAYLOADER" tractor-shovels and tractors — give them maneuvering speed, ease of control and a wide choice of operating ranges.

Each "PAYLOADER" is a proven unit, made by the tractor-shovel pioneer that has built more wheeled tractor-shovels than all others combined. And "PAYLOADER" units are sold by an experienced, well-established Distributor organization having complete parts and service facilities that protect your "PAYLOADER" investment.

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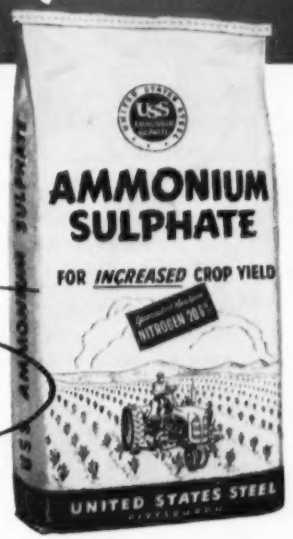
TWO BIG summer markets for USS Ammonium Sulphate...

- for sidedressing young corn
- for topdressing pastures

Available in 100 pound bags and bulk



Now is the time to stock up on your USS Ammonium Sulphate for the big corn sidedress demand that will be starting up in just a few weeks. Farmers who have neglected to plow under sufficient nitrogen *must* sidedress to get top yields. Urge them to do it *early* so that the rain will have a chance to carry the nitrogen down into the root zone where it will give best growth results. Avoid root pruning by sidedressing at the first cultivation.

USS Ammonium Sulphate has proved an ideal nitrogen source for corn sidedress because it is so easy to use . . . always dry and free-flowing and less corrosive than similar materials.

Another important summer market for USS Ammonium Sulphate is pasture topdress, after the first grazing. Nitrogen-enriched soils produce heavy yields of high protein grass. And, nitrogen promotes quick regrowth, boosts the carrying capacity of each acre during the season.

For pasture topdress too, USS Ammonium Sulphate is very popular. Its ammonia nitrogen resists leaching yet is available when the plants actually need it. Promote the use of nitrogen for corn sidedress and for pasture topdress this summer. Remember that better yields for farmers mean bigger business for *you*. And for best results from nitrogen, sell USS Ammonium Sulphate.

USS AMMONIUM SULPHATE

USS

UNITED STATES STEEL

more and more
granulated
fertilizer manufacturers
are turning to

LOUISVILLE rotary dryers rotary coolers

to speed production ... reduce drying costs

Installations are individually engineered for your problems. Results can be pre-determined in our pilot plant. We'll be glad to show you how the fertilizer industry has found a new way to efficient and profitable drying.

A Louisville engineer will survey your present operation without obligation on your part. Take advantage of Louisville's equipment and experience. Phone or write today.

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NATIONAL PLANT FOOD INSTITUTE MEETING LAUNCHES MERGER OF NFA AND APFC

Nationally-known leaders in the field of agriculture, industry, and government will appear on the program for the preliminary convention of the National Plant Food Institute at The Greenbrier, White Sulphur Springs, W. Va., June 12-15, 1955.

Presidents Russell Coleman of The National Fertilizer Association and Paul T. Truitt of the American Plant Food Council estimate that more than 800 fertilizer manufacturers, material producers, agricultural leaders, and others will be present for the convention. The Council and NFA will be consolidated into the National Plant Food Institute, effective July 1.

Registration will begin on Sunday, June 12 and the convention will get underway on Monday, June 13 with a meeting of the Institute's Board of Directors-elect and a forum featuring problems relating to fertilizer-pesticide mixtures, sponsored by the Technical Service Committees of NFA and APFC.

M. V. Bailey, Technical Director, Agricultural Chemicals Division, American Cyanamid Company of New York City, will be the moderator for the forum and other speakers will include: K. D. Jacob, Head, Fertilizer and Lime Section, USDA, Beltsville; C. T. Harding, General Manager, Fertilizer Division, Manufacturing Department, Virginia-Carolina Chemical Corporation, Richmond, Va.; John D. Conner, Attorney, Sellers and Conner, Washington, D. C.; and Rodney C. Berry, Virginia State Chemist, Virginia Department of Agriculture, Richmond.

Events Monday afternoon include

1. William B. Ward, President, American Association of Agricultural College Editors, and Head, Dept. of Extension Teaching and Information, Cornell University, Ithaca, N. Y., moderator.
2. William D. Gunter, Live Oak, Fla., naional President of the Future Farmers of America.
3. Lamar Ratliff, Baldwyn, Miss., representing 4-H Clubs.
4. Joe Strickland and Tommy Dotson of Summersville, W. Va., representing the National Junior Vegetable Growers Association.
5. Rep. Harold D. Cooley (D-N. C.), Chairman of the House Committee on Agriculture.
6. Senator John L. McClellan (D-Ark.), Chairman of the Senate Committee on Government Operations.

a ladies' garden party, a refreshment hour, courtesy of nitrogen producers, a dinner and open house.

An address by Assistant Secretary of Agriculture E. L. Peterson and a youth panel of representatives of the Future Farmers of America, 4-H Clubs, and the National Junior Vegetable Growers Association will be features of the Tuesday, June 14 morning sessions. E. A. Georghegan of New Orleans, La., Chairman of the Board of Directors of NFA, will preside and address the convention and will be followed by Edwin Pate, Laurinburg, N. C., who will speak as Chairman of the Executive Committee of APFC.

Youth panel participants on the Tuesday morning program will be: Professor William B. Ward, Head, Department of Extension Teaching and Information, Cornell University, Ithaca, New York, moderator; William D. Gunter, Live Oak, Fla., national President of the Future Farmers of America; Lamar Ratliff, Baldwyn, Miss., representing 4-H Clubs; Joe Strickland and Tommy Dotson of Summersville, W. Va., representing the National Junior Vegetable Growers Association. The annual banquet, preceded by a refreshment hour, will conclude the Tuesday program.

Senator John L. McClellan (D-Ark.), Chairman of the Senate Committee on Government Operations, and Rep. Harold D. Cooley (D-N.C.), Chairman of the House Committee on Agriculture, will be feature speakers at the Wednesday morning, June 15 session, at which Mr. Pate will preside.

Preceding the addresses, George Gage, Anderson, S. C., will present the "In Memoriam" resolutions.

Another feature of the Wednesday program will be the presentation of scrolls to winners in the nation-wide "Soil Builders Award for Editors" contest by Louis H. Wilson, Secretary and Director of Information of the American Plant Food Council.

Food-Fertilizer Brochure By NFA

NFA has just published a brochure entitled "More and Better Foods from today's pay check," which goes into the sweeping changes that have taken place of recent years in food production on the farm, in processing and distribution, in the home. It shows that for a smaller part of income we buy more and better foods, because now the farmer produces enough for himself and 18 others, whereas he used to produce only enough for himself and 7 others. The moral, of course, is better farming methods and fertilizer.

Local Level Reports

Oklahoma PFA to Continue Wheat Demonstration

The 4-H and FFA wheat fertilizer demonstration which has been a major project of the Oklahoma Plant Food Association will be continued another year, it was decided at their last quarterly meeting. A bulletin on the contest will be ready May 15. Their next meeting is in June.

Among the bulletins sent their membership is the following table on various grain demonstrations.

RESULTS OF FERTILIZER DEMONSTRATIONS CONDUCTED BY THE EXTENSION SERVICE OF OKLA. A. & M. COLLEGE 1953
(Summary)

Crop	Number of Completed Demonstrations	Average Yield No Fertilizer	Average Yield With Fertilizer	Average of Increase In Yield	Value of Increase	Cost of Fertilizer	Net Profit Per Acre
Wheat	60	16	27	11	$22.00	$ 4.15	$17.85
Oats	44	36.1	58.6	22.5	19.12	4.78	14.34
Barley	3	30	44.4	14.4	15.84	5.28	10.56
Corn	23	25.7	36.1	10.4	15.60	5.00	10.60
Cotton	28	443	579	154	46.20	4.00	42.20
Forage Sorghums	13	7.8	16.6	8.8	70.40	7.00	63.40
Grain Sorghums	11	17.7	37.0	19.3	27.02	3.35	23.67
Peanuts	7	69.1	79.3	10.2	28.84	3.50	26.34
Castor Beans	5	204	509	305	30.50	5.50	25.00

Note: Forage sorghums—yields in tons of silage per acre. Small grains, corn, peanuts, grain sorghums—yields in bushels per acre. Cotton—yields in pounds of lint per acre.

Midwest Soil Meet October 27

Zenas H. Beers, executive secretary of the Middle West Soil Improvement Committee has announced that their annual meeting will be held October 27 at the Sherman Hotel, in Chicago.

GaPFES Dinner To Honor Grazers

J. Fielding Reed, secretary-treasurer of the Georgia Plant Food Educational Society, has announced a dinner honoring the winners of their Georgia Grazing System Contest, to be held at the Hotel Biltmore, Atlanta, on Friday May 20th at 12:30. Leading agronomists and other agricultural leaders have been invited.

Maine Research Study of Potato Marketing

The Maine Agricultural Experiment Station, in cooperation with the Agricultural Marketing Service and the Commodity Exchange Authority of the United States Department of Agriculture, is undertaking a study of the marketing of potatoes, including the relations of future prices on the New York Mercantile Exchange to the movement and distribution of potatoes.

Canadian Producers Convene July 5-9

The 10th annual convention of the Plant Food Producers of Eastern Canada will be held at Bigwin Inn, Lake of Bays, Moskoka, Ontario July 5-9. C. W. Jarvis, secretary-treasurer of the association, and the source of detailed information, may be reached c/o Canadian Industries (1954) Ltd., Agricultural Chemicals Department, 3434 Dudas Street West, Toronto 9, Ontario, Canada.

N. C. Enacts New Fertilizer Law

New regulations governing liquid fertilizer were enacted into law in North Carolina April 1, effective May 1.

The new rules include:

1. Weight of liquid fertilizer must be expressed in terms of pounds.

2. Upon delivery, a tag or invoice must accompany shipment showing name of seller, date of delivery, grade and pounds.

3. Requirements that wholesalers or retailers furnish evidence of liability insurance or bond to the N. C. Department of Agriculture, and that they register or re-register with the department each January were removed from the 1951 statutes.

CFA

SOIL IMPROVEMENT COMMITTEE HOLDS THIRD ANNUAL FERTILIZER CONFERENCE

Approximately 300 persons from various portions of the United States took part on April 26th in the program of the Third Annual California Fertilizer Conference, sponsored by the Soil Improvement Committee of the California Fertilizer Association, and held on the campus of the University of California, College of Agriculture at Davis, California.

All present took part in the open discussion which was promoted by three separate panels which rotated among three meeting rooms until all groups had participated in the entire program. Panel discussion was had on the subjects of Field and Forage Crops with John Tollefson, Salinas, moderating; Vegetable Crops, Weir Fetters, Stockton, moderator; and Deciduous and Citrus Fruit Crops, moderated by Robert E. Whiting of Hayward.

Dr. H. J. Gramlich, former Head of the Department of Animal Husbandry, University of Nebraska, and more recently Director of Agricultural Development for the Chicago and Northwestern Railway System, spoke following the banquet that evening. He said that there have been more changes in agricultural practices throughout the world in the last 50 years than in the 2000 preceding years, most of which occurred during the last ten years. During this period, use of plant food has increased 3½ times as the result of new knowledge gained as to the value of commercial fertilizer and new technology in its production.

Population in the United States is growing by almost three million per year. Not only must more food be provided, but housing and service facilities must be erected as well. Much new building is on land being taken out of agriculture, said Dr. Gramlich. One million acres of farm land has been so utilized each year since 1940. Another trend, he said, is the movement from the farm to the city. 50 years ago almost ½ of our people lived on the farm. Today, 87% live in the city. He pointed out that there is no new land area to be developed agriculturally, and that the shrinking acreage available must be made to produce all of our increasing food and fibre needs. Fertilizer, he said, is a very necessary tool for the performance of these needs.

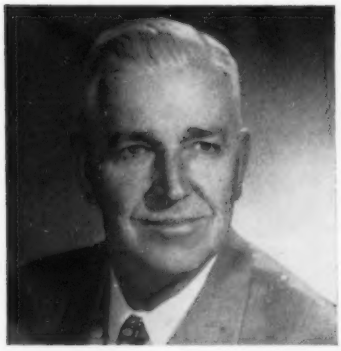
The morning program was devoted to several interesting outlines. CFA President B. H. Jones of Sunland Industries, Inc., Fresno, welcomed those present and thanked the officials of the University of California for the use of its facilities and for their active assistance in arrangements and in participation in the program for the Conference.

Dr. Stanley Freeborn, Provost, University of California at Davis, outlined the program of the University and other Land-Grant Colleges which train students in agriculture and other subjects. He pointed out that during a period when the country's population has been increasing by several hundred percent, the enrollment of basic agriculture students has increased by only two or three percent. He said that about 1900 it was feared that the population was increasing out of proportion to the ability of agriculture to increase its production. At that time, it took 85 farm people to produce food and fibre for 100 persons. Now, 10 farm people produce enough for the needs of 100. While famine is rife in other parts of the world, we, in the United States, have been able to keep ahead of our needs because of technical progress in agriculture. He said that more students should consider the satisfying and very necessary professions in the field of agriculture.

LeVerne N. Freimann, County Extension Agent, Whatcom County, Bellingham, Washington, outlined the results obtained at the Benedict Demonstration Farm which has been operated as a project during recent years in his county. This 100 acre dairy farm had been cropped until its productive capacity had about been exhausted. For this reason, it was chosen by a group representative of Washington State College, Farmers' Home Administration, Soil Conservation Service, banks, farm equipment dealers and the fertilizer industry as the ideal one on which to stage a fertilizer demonstration. As the result of proper fertilization and other approved farming practices this unproductive land which had been unable to sustain 14 milk cows and 18 head of young stock was, within three years, supporting more than 3 cows per acre on the ladino and orchard grass pasture, and the herd had been increased to 32 milk cows. Sufficient surplus feed is now produced during the growing season to allow storage for winter feeding. Freimann pronounced the experiment an outstanding success.

Also on the program were: M. E. McCollam, Western manager for American Potash Institute, San Jose, and chairman of CFA's Soil Improvement Committee; A. George Park of Balfour, Guthrie & Co., San Francisco; and Robert Z. Rollins, assistant chief, California State Bureau of Chemistry, Sacramento. Their talks are presented in full on following pages.

The morning session was completed by showing the film "California Grows with Fertilizer." A 16 mm. color film in sound, it runs about 22 minutes. It is not highly technical in nature having been produced with the farmers in mind as the ideal audience. It is most interesting, the photography is excellent, and prints are available for free showing before any group upon application to the University of California Extension, Visual Education Department, at either Berkeley or Los Angeles; California State Polytechnic College, San Luis Obispo; or the California Fertilizer Association, 475 Huntington Drive, San Marino, Calif.



DEVELOPMENT OF POTASH USE IN CALIFORNIA

By Millard E. McCollam*

The fact that many of our soils in this State initially have contained good supplies of potash has tended to minimize research and demonstrational activity centered around this plant nutrient. In the early 1930's there was but little information on levels of available potassium in California soils. A limited number of fertilizer tests including potash were being conducted in the field. Strictly speaking the only potassium study under way in the field was that centered around a case of potash deficiency on prune trees near Chico, California. The potassium supplying power of several soils was also being studied at this time by cropping these soils in the University greenhouses at Berkeley.

Through an agreement reached by the potash industry and the University during this period a fund was set up to accomplish a more extensive study of the available potash in the soils of the state. Starting in 1933 and continuing for several years, a thorough soil sampling and soil testing program was carried out on at least 130 California soil types. While this project did not include all soil types of the State by any means, the information obtained showed that about 35% of the soil types sampled had high to very high levels of available potassium as measured by the Neubauer test. On the other hand about 30% of the soil types had low to very low levels of potassium by the Neubauer standards. The remaining 35% were in a medium range of available potassium.

In all, 294 locations were sampled, and 36% of these locations gave low readings for potassium by the Neubauer standard. These low potassium readings occured most frequently on the sandy and sandy loam soils of the east side of San Joaquin Valley, the Ramona, Holland and Botello sandy loams in southern California, the sands and sandy loams of the coastal areas, a number of the soil types of the coastal valleys of central California, and several of the soils of the northern Sacramento Valley, then mapped as Vina, Elder and Farwell.

The result of this soil study was of considerable interest in that it established the presence in California of soil areas having low levels of available potassium. It also gave a basis for starting a program of field research to study the response which might be expected from applications of potash fertilizers.

Field studies were immediately started and engaged in cooperatively by the potash industry and the University. The response of sugar beets, grapes, ladino clover, and tree fruits to potash applications, studied by means of field and greenhouse experiments during the late 1930's yielded very useful knowledge in the development of future potash experiments.

It was found in a number of cases with grapes and tree fruits especially, that field response to potash on soil areas determined to be low by soil tests did not materialize. This led to doubt of the adequacy of the soil testing method for determining potash needs of some crops.

During this same period, an increasing interest was developing in the chemical analysis of leaves of plants as a guide to adequate nutrition. Again, the potash industry through its American Potash Institute, encouraged this interest with research grants to the University for the purpose of developing the leaf analysis method. Research on effective methods of sampling leaves was engaged in, and critical levels of potassium in the leaves of various crop plants was studied. Fortunately, leaf samples were less laborious than soil samples to collect, so that this research was based on literally thousands of leaf samples.

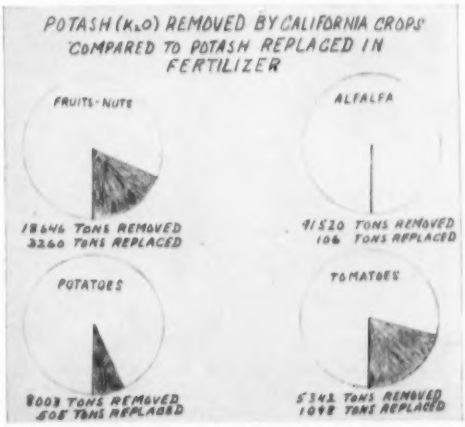
Very early in our leaf analysis activity, it was found that most of the baffling results hitherto obtained could be explained through this method of analyzing the plant itself.

In all cases where there had been crop response to the potash fertilizer applied, an appreciable increase in the level of potassium in the leaves could be found.

In cases where crops on low potassium soils failed to respond to applications of potash fertilizer, it was found through leaf analysis that either

1. The crop growing on a low potassium soil was actually getting enough potassium from that soil for optimum production without potash fertilizer, or

2. The crop growing on a low potassium soil was not responding to potash fertilizer because actually for some reason the plants were not able to take up any potassium from the application made.



In searching for an answer to the question, "Why are plants under some soil situations not able to take advantage of usual applications of potash fertilizer to overcome the effects of deficient potassium nutrition?", several possibilities were advanced.

The high fixing power of some soil might render the applied potassium unavailable to plants.

High amounts of available calcium and magnesium in some cases might militate against adequate potassium getting into the plants.

Damaged root systems of plants existing under potassium deficiency might interfere with adequate potassium uptake.

At this point in the potassium research program it was decided to

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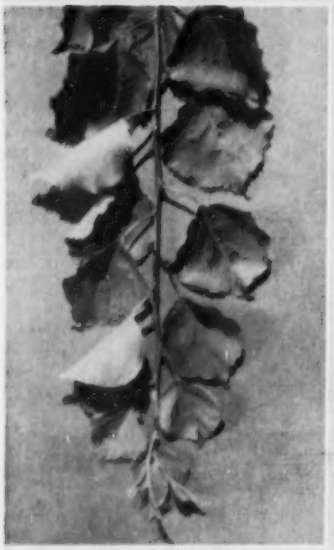
increase the rate of potash applications in the field experiments as a means of correcting conditions of potassium deficiency. Earlier work with fruit trees had used this method successfully in attempts to correct severe potassium deficiency. Rates reaching as high as 100 lbs. per tree of potassium chloride had been used in this instance.

As soon as this method was again employed, using in the case of fruit trees 20, 30 and even 50 lbs. of sulfate of potash per tree, very good results were obtained on a number of different soil types. By means of leaf analysis the uptake of potassium was followed. It was found that a more rapid uptake resulted from these heavier applications, and the potassium continued to increase in the trees for several years following the one application. Most of the previously unsuccessful attempts to correct potassium deficiency were reversed, and the "massive application" method is now being com-



1. Apricot tree on Azula Silty Clay soil in California showing severe symptoms of potash deficiency.
2. Apricot trees in same orchard one year after treatment with potash fertilizer.
3. Effect of potassium deficiency on apricot leaves. Left: Normal. Right: Deficient.
4. Bartlett pear trees on Pescadero clay soil in California showing severe symptoms of potassium deficiency.
5. Bartlett pear trees in same orchard one year after treatment with potash fertilizer.
6. Bartlett pear leaves. Right: normal. Left: potash deficiency

monly practiced to correct potassium deficiency in orchards.

More recently it was found that a heavier than usual rate of potash was required on potassium deficient alfalfa to effect a recovery. In this case in Butte County, on a soil in which adjacent almond plantings showed severe potassium deficiency, an application of 800 lbs. per acre of potassium chloride was required to enable the alfalfa to produce a much improved crop. The desirable effect of this one application lasted for at least two years.

Since leaf analysis has been employed to appraise the need for potash on some of our many crops, deficiency situations have been discovered of a severity equal to those anywhere in the country.

With only one case of recognized deficiency on record on one crop in 1930, we now have recognized deficiency on celery, potatoes, alfalfa, clover, almonds, apricots, prunes, olives, grapes, peaches and pears. These cases are widely spread throughout the state, and more are appearing each year, as field research is extended.

Most of the attention centered on potash has thus far been largely devoted to locating seriously deficient areas, and to finding methods of correcting these serious deficiencies. In many of these cases there has been a great economic loss to our agriculture for years while time was spent in finding these seriously deficient areas and in proving them actually to be potash deficiency. It would now appear to be a much wiser procedure to recommend the use of potash before such serious trouble develops. Soil tests and leaf analysis can now aid materially in directing such a program.

More attention is presently being given to the soil areas of lower fertility level in the state. The use of fertilizers is part of a more intensive use of these soils. Nitrogen and phosphorus are being used extensively to raise production, but potash is still not considered necessary, even on soils of low potash fertility. We have followed an extravagant policy with the potash resources in our soils, adding currently in fertilizer, only about 14,000 tons of K_2O per year while the removal from our soils each year is six times this figure. A diagramatic comparison of annual removal and replacement of potash for several California crops is presented here.

This is not particularly disturbing on the soils which are notably high in potash fertility. It has been shown however, that at least 30% of our soil samplings fell into a low category, and here we should begin to be concerned with a more conservative use of the potash resources, which would, of course, mean the regular use of potash fertilizer.

Progress Report On

RANGELAND DEMONSTRATIONS

In California

By A. G. Park, Balfour, Guthrie & Co., Limited, San Francisco

Mr. Chairman and gentlemen, I wish to thank you for inviting me to speak at the Third California Fertilizer Conference.

You have asked me to present a Progress Report of Fertilizer Demonstrations on California Rangeland. To cover this subject as I would like would consume much more time than that allotted to me this morning —so, in the preparation of this talk, I have condensed some of the basic background which I feel is essential to a proper understanding of what our Range Fertilization Program is, —the type of range and soil—climate and moisture conditions and, finally, a summary of a few of the highlights dealing with results obtained to date this season.

Beginning in 1952, large scale field demonstrations were arranged to prove whether or not range fertilization pays off. First year results were very encouraging and, because of these results, the program was expanded. This demonstration program, now in its third year, has involved the use of over 3,000 acres of California Rangeland, 1289 beef animals, approximately 650 pairs of ewes and lambs. The co-operating ranchers have provided and installed many miles of fencing and Balfour, Guthrie & Co., Limited, have provided, without charge, over 150 tons of Elephant Brand Fertilizers.

These field operations were carried out by Balfour, Guthrie & Co., Limited in co-operation with individual ranchers, Soil Conservation Districts and California State Polytechnic College, at San Louis Obispo. To cover a wide variety of soils and climates in typical rangeland areas, the demonstrations were located in 9 different counties, stretching from Tehama County in the north to San Diego County in the South. Rainfall in these areas has varied from less than ten inches to slightly over twenty inches. The soils vary from acid to moderately alkaline. They were primarily of the old alluvial clay pan and upland types in land capability classes 3, 4 and 6.

Throughout the entire grazing period, the animals and demonstration ranges are closely observed by local livestock men and technical men from the Soil Conservation Service, California State Polytechnic College, the University of California, and other agencies.

Basically we are dealing with California's Annual Rangeland—the fertilizing of this range—stocking the range, when it is considered to have reached grazing readiness, with steers and or heifers, or ewes and lambs, which have been carefully weighed immediately prior to being placed on the range — and weighing out these animals at the end of the Spring green feed period. Gains in weight during the entire grazing period are computed for both the fertilized and unfertilized demonstration fields—the data resulting from this is analyzed to show beef production in the form of average daily gains and total production per head per range acre, and, finally to show gross and net dollars return per acre.

Close observation is maintained on the livestock and range during the entire grazing period. Field days and small group meetings are arranged in order that the local livestock men and others interested may see for themselves the results being obtained in their districts. The value of these meetings held on the range cannot be overestimated as they provide the opportunity for full discussion. These discussions r e v o l v e around such subjects as estimated weight gains—livestock condition—carrying capacity and condition of the range—differences in the amount and vigor of growth between the fertilized versus the unfertilized fields—changes, if any, in the composition of the flora—the long term effects of fertilization, and, of course, the economics of range fertilization. From this supplementary information, data of inestimable value is being accumulated and, will, in the years ahead, be used in a practical manner to increase the carrying ca-

pacity of our annual ranges.

The production and feeding of livestock is one of California's most important industries and its importance will continue to grow with our ever increasing population. California has a total land area of 100,000,000 acres and 37% is being grazed annually. Production from these grazed lands varies widely. The most productive areas are located in the valleys and foothills and it is in these areas our demonstrations are located.

The principal forage plants of these valley and foothill ranges are annuals—grasses, clovers and alfilaria—which germinate with the arrival of fall rains. They make a varied amount of growth during the winter, depending on fertility, moisture and temperature conditions. From February to May is usually the period of greatest growth. By analysis of forage and by field observation, it has been shown that there is wide variability in the nutritive value of forage in different areas. This is to be expected, as there are many different soils in California and these soils vary widely in their nutrient supplying capacity. The most important cause of this soil variability is the availability of nitrogen and phosphate. Nitrogen is directly responsible for much of our forage growth, but nitrogen can only function effectively in the presence of adequate and available phosphate. When adequate supplies of both are available in the soil, they work together as a team, even under limited supplies of soil moisture and cool temperatures, to provide surprisingly large amounts of total forage, high in nutritive value.

As a result of previous work and observation, it is well known that a high percentage of California's typical hilly rangeland is low in available phosphate as well as nitrogen. Because of these findings we have used a Nitrogen-Phosphate fertilizer in the form of Ammonium Phosphate 16-20 as our basic demonstrational fertilizer. While concrete experimental evidence is limited, many workers have observed that plants will respond to fertilizer phosphate under cool weather conditions much more readily than they will to natural soil phosphates, unless the natural soil phosphate is extremely high. The results obtained from our field scale demonstrations have substantiated these findings. In our reporting to date on our first two years work, we have shown that the fertilized demonstration ranges have, on the average, been ready to graze six to eight weeks earlier than the adjacent unfertilized control range, and have produced 3 to 6 times more forage per acre which has resulted in an average of 4 times more beef production per acre.

What has happened this year? The grazing season is only ⅔ completed and I am, therefore, in position to report only what I know has transpired to date.

This season has been a most difficult one for those pastures and crops dependent for growth on rainfall and temperature, the season started out very well with good moisture conditions November thru January. However, day and night temperatures were below normal and as a consequence growth was retarded. After January, with the exception of an occasional shower in some areas, we experienced almost 70 days of continual drought—high north winds occurred frequently and as a result of these winds, the top 3"-4" of soil was dried out. In the opinion of stockmen, growth conditions have been the worst in over 20 years. The drought ended last week—most of the range areas received at least 1" to 3" of rainfall.

I have described the season to you in order to emphasize the fact that even in a season such as we have had, many favorable responses to the application of Nitrogen and Phosphate on dry land range are being recorded. Here are a few of the current examples:

At the Touley Bros. Ranch in Amador City, where we are now in our third consecutive demonstration year, the only green field of native range to be seen in that general area during December and January, and into February, was the 33 acre demonstration range. This range was stocked on December 15 with 33 yearling steers. These steers were not supplemented in any way. When they were weighed out on February 18 their daily average gain was .72 lbs. and their per head and per acre gain during this period was 47 lbs. and the cattle were in good condition. In comparison, cattle in neighboring ranges in order to maintain or lose as little as possible of their fall weight had to be kept on a continuous supplementary ration. It has been reported to me that the cattle owned by one neighbor who did not supplement the range feed, lost an average of 85 lbs. per head during this same period. On April 4th these animals were returned to this 33 acre field for a second grazing period.

In Tehanna County—near Corning where our demonstration is with Leon Williams, the demonstration range consists of two fields—40 and 51 acres respectively is being grazed by ewes and lambs. Stocking of this commenced March 9 and by March 19th, 255 ewes and 230 lambs were grazing the fertilized ranges. These ewes and lambs were weighed out on April 7th and showed that our field had produced 50 lbs of lamb per acre and the other 42 lbs. In addition, the ewes gained 4 lbs. per head, going from 139 lbs. to 143 lbs. On April 18th these fields were re-stocked with a total of 300 pairs of ewes and lambs.

It was in this area that the drying north winds, combined with some of the lowest temperature recorded in that area in eighty years, seemed to do the most damage to forage growth. On the stocking date, forage production on the fertilized range was estimated to be at least 20 times greater than on the similar adjacent unfertilized range. During the period when those gains were made it was deemed not practical to stock the unfertilized range as it didn't have sufficient growth to support even a light rate of stocking.

The rainfall of the past week together with the fertilizer applied last fall will undoubtedly assist in producing many additional pounds of lamb before the close of the season.

In San Mateo County at the Norman Souza Ranch, where our demonstration is now in its second year, on January 26 this 40 acre demonstration range was stocked with 74 yearling steers average weight 417 lbs. They were weighed out on February 28 and during that 31 day period the per head daily gain was 1.87 lbs. and production of beef per acre was 107.3 lbs. These 74 head were then placed on the adjoining 52 acres of unfertilized field and the weigh out 26 days later showed an average daily gain per head of 1.03 lbs. as against 1.87 lbs. for the fertilized field, and a production of 41 lbs. of beef per acre. The steers were returned to the fertilized range on March 31 where they are still grazing.

In Carmel Valley, Monterty County on the Robert Wilson Ranch, where our demonstration is now in its second year, the 30 acre fertilized range was stocked on March 2 with 30 yearling steers and heifers. On April 6, after 35 days grazing, they were taken out for weighing and showed an average daily gain of 3.1 lbs. per head and a beef production of 108.6 lbs. per acre. After weighing they were returned to the fertilized field and continue to graze there. The rainfall of the past week gives reasonable assurance that they

will remain in this field until about the end of May.

Our Range demonstration at the California State Polytechnic College, San Luis Obispo, is now in its third year. The demonstration range there contains 159 acres divided by fence into three fields of almost equal size. One field is fertilized each year with 300 lbs. per acre of ammonium phosphate 16-20-0. Two of these fields were stocked on December 22, 1954 and the third field on January 4, 1955. No weigh out has yet been made but the cattle in all fields are doing well. Here, as in other of our demonstration ranges, decided residual benefits from the previous years of fertilizer applications are showing. All of this will be fully reported in due time by Cal. Poly.

In Santa Barbara County on the A. C. Pedotti Ranch we are carrying two demonstrations, one of which is in the second year. These demonstration ranges were stocked during November, December and January. No weigh out has yet been made but the cattle are doing well. The 25 acre demonstration range fertilized with 300 lbs. per acre ammonium phosphate 16.20 now in its second year, is stocked at the rate of one head per acre and an inspection of this field made last week showed that it could easily have handled an additional 10 head. Last year this field produced 259 lbs. of beef per acre. With one more rain (now relieved) that figure, even at the current stocking rate, will probably be exceeded and still leave much more than ample dry feed cover material in which to graze during the dry summer and fall. In our second demonstration area started last fall on this ranch we are comparing the results to be obtained from a straight nitrogen application in the form of ammonium sulphate at 48 lbs. of actual nitrogen per acre—versus no fertilizer: this is the same amount of nitrogen as is in 300 lbs. Ammonium Phosphate 16.20.

* * *

The accumulated advantages of fertilizing range lands are many, while the final economic measure is in pound gains per acre, this animal gain results from better range and desirable range plant cover—Better growth during the cool low temperature of winter—better utilization of the rainfall present in the period of potential growth. Better feed with a light nutritive value chiefly better protein and mineral content of which the most important is phosphate. All of these contribute to the final result.

The key to success with range fertilization is applying the proper fertilizer early in the Fall to take advantage of all possible rainfall and winter growing weather. This is the first step. The second and equally important requirement for securing the greatest economic returns from proper range fertilization is dependent on the cattleman's judgement in stocking the range with the correct number of animals so that the grazing animals are always securing the early bite of the newly grown plant. At this stage the protein content and the phosphate content of the cover are the highest. If the range is undergrazed the cover grows towards maturity resulting in a much lower nutritive value.

The eye of the livestock man is of great importance for maximum economic gains.

MIXTURES PESTICIDES FERTILIZER

by **Robert Z. Rollins**
Assistant Chief, Bureau of Chemistry
California State Department of Agriculture

It is sometimes said that the reception of a new idea passes through two phases. When it is first talked about, people say, "It's not true. It won't work." Then after the idea takes hold and is put into practice, people say, "There's nothing new about that. It's been known for years." The idea of combining pesticides with fertilizers has already reached the second stage.

In the annual report of the California Agricultural Experiment Station for 1902-1903, George Colby, who later moved to Sacramento when the Bureau of Chemistry was established, described a product sold as "Nature's Wonder," a fertilizer-insecticide marketed by the Twentieth Century Novelty Company. The twentieth century was new then and so were fertilizer-insecticides, but that was a long time ago. Colby found this mixture contained sand, iron sulfate, marble dust, gypsum, and sassafras, with a total of 1% NPK, and his comments indicated that he was not enthused about it.

Materials that make plants grow better are fertilizers. Materials that protect plants from pests are pesticides. As might be expected, some materials do both or perform in a way that makes it difficult to classify them solely in one or the other category. For example, calcium cyanamide, commonly used as a fertilizer, has also been used to control weeds, to control the apothecia of brown rot and overwintering pear thrips in orchard soils, and to defoliate cotton. Thus one fertilizer compound can be an insecticide, a herbicide, a fungicide, and a defoliant. Sulfur is another good example: each year in California about 25,000 tons are applied to plants to control insects, mites, and fungi, and about 15,000 tons are applied to the soil as an agricultural mineral. Similarly about 10,000 tons of lime sulfur solution are used on plants as a pesticide and 3,500 tons are used on soil as an agricultural mineral. Copper sprays are generally applied to plants as fungicides, but some are applied to plants to alleviate copper nutritional deficiency. Small amounts of borax are applied to plants to correct boron deficiency while large amounts are applied as a weedkiller, and so on.

Development of foliar applications of fertilizers has encouraged their simultaneous application in sprays with pesticides, and urea as a plant nutrient to supply nitrogen is now being added to some pesticide sprays enabling the farmer to do two jobs at one time.

Roots of a plant occupy about as much space in the soil as the branches and leaves do in the air, and they are subject to attack by many pests. Although we can see the damage that pests do to the parts of the plant above the ground and know when control measures should be taken to control the pests that attack twigs, leaves, and fruit, less is known about the presence and the economic significance of pests that attack below the soil line. Sometimes the importance of a pest is not fully realized until adequate measures are available for its control. The interest in pesticide-fertilizer mixtures that has arisen in the past five years comes in part from an increased interest in the importance of soil pests and from development of pesticides suitable for soil application.

To be suitable for this use, a pesticide must be chemically compatible with fertilizer ingredients. It must be effective in low dosage rates per acre. It must be suitable for ap-

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plication when, where, and how the fertilizer mixture is to be applied. It must not be injurious to plants in the dosages used and must not affect the quality or flavor of the crop.

Much of the current interest is centered around aldrin and isodrin, dieldrin and endrin, and chlordane and heptachlor. Toxaphene is promising. It decomposes more rapidly in the soil than the others, but this might be an advantage in some uses. DDT is effective but it retards plant growth at levels that might be reached in practice and dosages require careful consideration. BHC and lindane are effective but present a distinct hazard in their detrimental effect on the taste of food crops and on root crops that might be grown in the soil even years afterward. However they have been used in fertilizers for lawns and ornamentals.

Work has been done on several dozen insect pests on several dozen major crops. The crops and the insect pests successfully treated so far have been summarized in an excellent article by K. D. Jacob in Agricultural and Food Chemistry for September 15, 1954. Any insect that spends at least part of its life cycle on or in the top few inches of the soil is potentially controllable by an insecticide applied to the soil, and therefore also by a pesticide-fertilizer mixture.

Pesticides are not limited to insecticides. Mixtures of 2,4-D and fertilizer have been successfully marketed for use on lawns, but great care must be taken to prevent contamination of otner fertilizers in the mixing plant and in storage. Further developments of herbicide-fertilizer mixtures are to be expected. It may seem far-fetched to expect a single mixture to make one plant grow better while it kills another plant, but selectivity in action and placement in relation to plant and seed make such action possible. Fungicide-fertilizer mixtures have been tried on lawns, and unquestionably we are going to hear more about nematocide-fertilizer mixtures.

Each field requires special consideration to correlate the fertilizer application with the pesticide application. The amount of pesticide needed must be uniformly mixed with the amount of fertilizer needed, and these amounts depend in part on whether the mixture is to be broadcast or applied along a row and whether it is to be left on the surface of the soil or drilled or worked into it. Most of the pesticides used so far require application of somewhere between one-half pound to six pounds per acre, with some as high as 25 pounds for certain purposes. With normal fertilizer applications, this means that each ton of pesticide-fertilizer mixture contains in the neighborhood of one to 20 pounds or more of the pesticides so far used.

The required amount of pesticide may be incorporated in the mixture in various ways—as a coarse powder, a fine powder, or granules of semi-concentrates or it may be dissolved in a volatile solvent and sprayed onto the fertilizer in a blender. Manufacturers of pesticides supply technical data on suitable mixing procedures.

It should be kept in mind, too, that pesticide-fertilizer combinations are not limited to dry materials and undoubtedly such mixtures will also be made with liquid fertilizers. Most of the pesticides can be emulsified in liquid fertilizer shortly before application. In fact liquid mixtures may offer special advantages, for example as in starter solutions. So far no experimental data seem to have been published on the possibilities of application through the irrigation water in ditches or by overhead irrigation.

In regions where few kinds of crops are grown on few kinds of soil, and recommendations can be simplified, definite interest has been shown in marketing pesticide-fertilizer mixtures. It has been estimated that 87,000 tons of mixtures were used in 1952-53, mostly in the southeastern and north-central states. Percentage-wise, of course, this only represents one-half of one percent of the total tonnage of dry mixed fertilizers, but it is an impressive figure for an agricultural technique that is really only a few years old. Use under California's diversified soil, crop, and climate conditions seems to have been discouraged by the complexity of the problem in this State.

Agronomists are somewhat skeptical of trying to kill two birds with one stone and fertilizer manufacturers share their lack of enthusiasm for wide-spread use of pesticide-fertilizer mixtures when they consider some of the disadvantages or problems involved.

First of all, can the fertilizer industry mix such materials to close specifications? The industry is having a hard enough time now with segregation of components of different particle size without undertaking to mix another ingredient uniformly throughout the material. Last year in California, one out of every eight lots of mixed fertilizer failed to meet the guaranteed percentages of plant foods. These deficient lots are high in one component and low in another. Manufacturers are solving this problem by pelletizing the mixtures to prevent segregation, and if pesticides are used with dry mixed commercial fertilizers, it seems probable that pelleted materials will be used.

What hazards are involved? Fertilizers usually have a lower toxicity than pesticides and present less hazard in handling and use. Manufacturers are reluctant to start handling materials that require additional precautions to protect workmen, materials that contaminate equipment, or materials that may be charged with injuring persons, livestock, or crops. Additional information is still needed in some instances to assess the danger of accumulation of the pesticides in the soil, of affecting the growth or quality of the crop, and the hazards of mistakes in labeling and misuse of products. Pesticides have a higher headache-factor per ton and per dollar sale than fertilizers do, and manufacturers of fertilizers are not eager to increase their product liability by entering the field of pesticides.

There are other disadvantages too. Pesticides may demand a higher freight rate than fertilizers. Sales tax must be paid, allocable according to the relative market values of the pesticide and fertilizer components in the market price of the mixture.

Perhaps the factor that discourages some fertilizer manufacturers the most is the necessity for separate consideration of each lot of material. The fertilizer industry is accustomed to marketing a product for general use and not for special use, and this differs from the pesticide-fertilizer business as marketing bread and butter differs from dispensing prescription drugs. It requires the manufacturer of the mixture to know more about the intended use than is required even of the pesticide manufacturer.

Pesticide-fertilizer mixtures are subject to laws governing pesticides as well as those governing fertilizers. There is no national fertilizer law, but any pesticide-fertilizer in interstate commerce must be registered with the Pesticide Regulation Section of the United States Department of Agriculture. All states have fertilizer laws and most states have pesticide laws, but they differ at the present time in their application to

pesticide-fertilizer combinations and in their requirements.

No particular problems have arisen in California where we have had some such multi-purpose products for a long time. A combination pesticide-fertilizer is subject to requirements of both laws. Each different mixture must be registered as a pesticide and as a commercial fertilizer simultaneously. The fees under both laws must be paid. It must be labeled in accordance with both laws. To a pesticide manufacturer this means adding the fertilizer guarantee to the pesticide label. To a fertilizer manufacturer this means adding the pesticide guarantee, adequate directions for use, and any necessary precautions to the fertilizer label. We have made an effort to discuss with each of the few registrants engaged in this combination business the many problems involved, and this policy has aided in avoiding troubles.

Although none of the pesticide materials so far used in such mixtures are considered to be effective systemically, they may enter the plant or adhere to its surface and thus contaminate the food or feed being raised. Pesticide-fertilizers are therefore subject to the schedule of tolerances recently promulgated by the Federal Food and Drug Administration. Some pesticides have already been cleared for use on certain crops, and other pesticides and other uses will undoubtedly be added from time to time.

And to offset all these difficulties, what are the advantages of combining a pesticide with a fertilizer? There is no evidence that combining the two makes the fertilizer a better plant food or that it makes the pesticide a more effective control. The only advantage is in the economy of one application as compared with two. This is no small matter in some cases, and for those particular uses where the saving justifies the preparation and marketing of a combination pesticide-fertilizer, these combinations will probably be a permanent addition to the field of agricultural chemicals.

Sauerman Moves To New Offices

Sauerman Bros., Inc. have moved their general offices to 620 S. 28th Avenue, Bellwood, Ill. The new office building is adjacent to their Bellwood plant and provides enlarged facilities for all departments.

CF Staff—Compiled TONNAGE REPORTS

FERTILIZER TONNAGE REPORTS (in equivalent short tons)
Compiled by COMMERCIAL FERTILIZER Staff

State	March		February	Jan.-Feb.-Mar. Quarter		July thru December		Year
	1955	1954	1955	1955	1954	1954	1953	1953-54
Alabama	315,766	317,645	83,818	433,542	498,391	267,041	147,702	1,087,763
Arkansas	81,579	93,919	35,444	134,588	166,326	59,887	52,438	366,225
Georgia	181,966	223,337	78,439	328,956	385,809	225,083	218,027	1,361,254
Louisiana	85,771	75,339	25,901	123,971	140,513	67,832	84,706	316,757
Missouri	120,206	120,004	42,291	189,351	273,137	268,257	256,427	756,457
N. Carolina	514,314	470,825	201,650	825,492	863,673	264,475	257,100	1,815,572
Oklahoma	17,212	14,683	13,020	35,770	41,182	58,406	71,558	144,367
S. Carolina	327,676	269,128	137,020	521,836	591,731	132,604	183,919	939,678
Tennessee	47,929	60,072	10,271	63,463	83,633	167,383	107,544	523,300
Texas	120,936	101,167	62,939	214,995	205,622	212,885	186,097	562,530
California	(reports submitted quarterly)			.....	214,105[1]	318,270	317,027	830,327
Virginia	(reports submitted quarterly)			287,367	305,316	159,185	160,715	780,931
Indiana	(reports submitted semi-annually)					285,673	283,937	1,180,091
New Jersey	(reports submitted semi-annually)					.....	57,928[1]	289,614
Washington	(reports submitted semi-annually)					58,162[1]	*	*
TOTAL	1,813,355	1,746,159	690,793	3,159,331	3,555,333	2,486,981	2,327,247	10,954,866

.....(not yet reported) * Not compiled. [1] Omitted from column total to allow comparison.

MARKETS

ORGANICS: The market on fertilizer organics continues tight with productions of popular forms such as Nitrogenous Tankage and Activated Sludge practically in a sold up position for the balance of this season. Processed Nitrogenous Tankage is nominally around $4.15 to $4.25 per unit of Ammonia, bulk, f.o.b. domestic production points.

CASTOR POMACE: Supplies of this form of Organic ammonia continue exceedingly tight with the domestic producers sold up for several months ahead. Price is nominally $37.50 per ton f.o.b. Northeastern production points.

DRIED BLOOD: This market has been rather weak recently with price at New York around $5.50 unground in bags. The Chicago market is around $5.25 but strengthing.

POTASH: Movement is against existing contracts and volume is good in spite of closing of the mixing season in certain parts of the southeast. Most imported material has already arrived in this country and no new offerings are in the market.

GROUND COTTON BUR ASH: Movement of this source of Potash, primarily in the form of carbonate of Potash, continues steady and supplies adequate to meet the demand. Current analysis varies from 38% to 41% K_2O allowing for the material to deliver at approximately the same cost as domestic Sulphate of Potash.

PHOSPHATE ROCK: Sales and shipments to domestic customers are seasonally good. Prices continue steady.

SUPERPHOSPHATE: Demand is beginning to taper off for normal Superphosphate in the Southeast and here and there tightnesses in supply have developed as a result of strikes of several railroads which have hampered the movement of Sulphuric Acid to acidulators. Triple Superphosphate demand is strong.

AMMONIUM NITRATE: Demand and supply appear to be in good balance and prices are steady.

NITRATE OF SODA: Stocks continue adequate to take care of the demand which is expected to increase in volume in the next few weeks. Imported material continues at $51.25 per ton in bags, f.o.b. at ports. Domestic material is available at $43.50 per ton bulk or $47.00 in bags, f.o.b. works.

GENERAL: Most fertilizer materials, with the exception of organic ammoniates, appear to be in adequate supply.

56,000,000,000 QUARTS

Healthy, well-nourished dairy cows produced over 56-billion quarts of milk last year, enough to float several of the largest ships in the U. S. Navy—and enough to assure every American plenty of milk, cheese, butter and ice cream. Nutritious grass and fodder, grown in soil made rich by modern commercial fertilizers, help cows maintain this high productivity.

Potash, an important component of these fertilizers, enriches the soil, improves crop quality, builds resistance to disease and increases crop yield. United States Potash Company's high-grade muriate of potash has the highest K_2O content, and is free-flowing and non-caking—important advantages in the manufacture of fertilizers that help raise the production and quality of the nation's milk.

HIGRADE MURIATE OF POTASH 62/63% K_2O
GRANULAR MURIATE OF POTASH 60% K_2O MIN.

UNITED STATES POTASH COMPANY

INCORPORATED

30 Rockefeller Plaza, New York 20, N.Y.

Southern Sales Office
Rhodes-Haverty Building, Atlanta, Georgia

SUNSHINE STATE POTASH
PRODUCT OF NEW MEXICO

REG. U. S. PAT. OFF.

PERSONALS

F. Clayton Nicholson, whose appointment as vice-president of the Davidson Chemical Company Division of W. R. Grace & Co., in charge of chemical operations, was announced by Marlin G. Geiger, president of Davison, April 11.

Mr. Nicholson's responsibilities include operations at Davison's Curtis Bay Works, Baltimore; Cincinnati Division, Florida Phosphate Division (Bartow) and Lake Charles (La.) Division.

He succeeds William B. McCloskey who has been named vice-president of the parent company, W. R. Grace & Co., in charge of administrative controls.

Frank A. Faulkinberry who has been appointed staff chemical engineer of The Rust Engineering Company, with headquarters in Birmingham, Alabama office. Prior to joining the Rust organization, Mr. Faulkinberry was chief engineer and plant manager for Associated Cooperatives, Inc., Sheffield, Alabama.

John E. Sanford, president, **Armour Fertilizer Works,** Atlanta, announced that **Carl F. Hagedorn,** who for more than fifty years has served Armour as head of their manufacturing department, retired April 1st. He will be succeeded by **Robert White.**

John C. Watt will succeed **Harry C. Moore** effective April 1st, following Mr. Moore's retirement after 47 years with Armour.

* * *

Southern States Phosphate and Fertilizer Company, Savannah, Georgia, has announced the appointment of **Jack Dana Lee** as superintendent of production, effective April 11.

With regret they advise of the resignation of **R. Bayard Baldridge, II,** who leaves with the best wishes of the entire personnel.

* * *

Curtis E. Grace has been named manager of the new **MFA** bulk fertilizer mixing plant at Albany, Mo. William L. Ballew is manager of the Slater, Mo. plant.

* * *

R. H. Hodgson is now retail sales sales manager of the eastern fertilizer division, **Olin-Mathieson,** Baltimore. **G. D. Baerman** is manager of insecticide sales.

* * *

Joseph J. Lantner has been elected president of **Central Farmers Fertilizer Co., Chicago.** He continues as assistant general manager of **Illinois Farm Supply. D. A. Williams** has been made sales manager.

* * *

W. R. "Buster" Hancock has been named general manager of **Superior Fertilizer and Chemical,** Tampa, succeeding **G. Dexter Sloan,** who has become board chairman.

* * *

Arthur F. Miller, since 1947 **Swift** plant food division general manager, and a pioneer in the development of complete plant foods, retired April 1, and was succeeded by **William F. Price,** who has been assistant since 1952.

* * *

Appointment of **Lars E. Ekholm** as manager of the sales division of **Climax Molybdenum Company** was announced April 15 by Reuel E. Warriner, vice president in charge of sales. Mr. Ekholm has been associated with Climax Molybdenum since 1946.

Appointment of Mr. Ekholm is the first in a series encompassing a realignment and expansion of the sales department which has been made necessary by the rapidly increasing importance of molybdenum as a metal and an alloying material in addition to its new uses in the chemical, lubrication and agricultural fields. The new organization is designed to bring about closer coordination of the over-all sales effort and to provide greater and more complete commercial and technical services to the users of the many forms of molybdenum.

* * *

J. F. McLaurin, past president of the National Cotton Ginners Association, has been appointed sales representative for finished insecticide products in South Carolina for **Olin Mahieson Chemical Corporation.** In addition, he will serve as a consultant for the company in cotton and tobacco areas throughout the United States.

* * *

The appointment of **Wallace D. Inman** to the post of managing editor of **Capper's Farmer** was announced by **H. S. Blake,** president, Capper Publications, Inc. Mr. Inman was last year's winner of the "Soil Builders' Award" of the American Plant Food Council, Inc. in the class of major farm magazines.

* * *

John P. Witter has been appointed by the **Kraft Bag Corporation,** multi-

Harold L. Straube, left, has been appointed to the Agricultural Sales Division of Stauffer Chemical Company, New York. Mr. Straube was associated with John Powell & Co. from 1940 until 1955. Dr. Douglas R. Murphy, right, has been appointed as research and technical advisor for the Midwest Region.

Appointment of Charles M. Hickey (1), Sam S. Emison (2), and Jennings C. Crowder (3) as vice-presidents of Consolidated Chemical Industries, Inc. was recently announced by George L. Bond, President of Consolidated.

Mr. Hickey, who has been with them since 1924, will continue as manager of manufacturing, Southern division, Houston, Texas.

Mr. Emison, who has been with them since 1925, will remain as Sales Manager, Southern division, Houston.

Mr. Crowder, with Consolidated since 1927, will move to San Francisco and take over the newly created position as general manager, New England and Pacific Divisions. Mr. Crowder was previously General Superintendent, Southern Division, Houston, Texas.

wall shipping sack manufacturing subsidiary of **Gilman Paper Company,** to represent them in North and South Carolina and Virginia, reporting to **F. L. Munger,** sales manager, at the New York office, 630 Fifth Avenue, New York. The company operates fully integrated plants at St. Marys, Georgia and Gilman, Vermont. "Pat", who will work out of Charlotte, N. C., was for 6 years paper merchant representative for **Minnesota Mining & Manufacturing Company's** pressure sensitive industrial tapes.

* * *

Nitrogen Division, Allied Chemical & Dye Corporation, San Francisco, California, has announced the appointment of **Ralston G. Hurlbutt** as Western Sales Manager, 1095 Market Street, San Francisco.

* * *

Tennessee Corporation has announced the appointment of L. C. Oakley, Jr., as General Manager of the **U. S. Phosphoric Products Division,** Tennessee Corporation.

* * *

Troy B. Stone, director of public relations for the **Fulton Bag and Cotton Mills,** Atlanta, has retired after 35 years with the firm.

* * *

F. S. Washburn, president of **North American Cyanamid** Ltd. and **E. D. Powers,** vice president of **American Cyanamid Co.,** addressed 260 members of the Cyanamid 25 Year Club, Niagara Falls, Ontario, at its annual meeting in the company's recreation center, recently and pointed out that the outlook is for a continued upward trend in economic conditions in North America.

* * *

St. Regis Paper Company announces appointment of the following assistant vice presidents.

John K. Ferguson, assistant to **Edward R. Gay,** executive vice president. Mr. Ferguson was resident manager of the Jacksonville mill from 1950 until September, 1954, when he was transferred to his present position at the New York office.

Gardiner Lane, director of the Product Development Department. Mr. Lane joined St. Regis in 1942 as assistant advertising and sales promotion manager and subsequently served as Washington representative and assistant to the executive vice president.

Bernard W. Recknagel, assistant secretary. Mr. Recknagel has been with St. Regis since 1935 and was appointed manager of the pricing and statistical department in 1946. March, 1952, he was made assistant secretary.

Andrew F. Storer, assistant to vice president in charge of sales. Mr. Storer joined the sales promotion department in 1940 and held various sales positions in the Multiwall Packaging Division until 1952, when he was appointed assistant manager of the Southeastern District. He was transferred to his present position at the New York Office in 1953.

Charles A. Woodcock, general sales manager, Multiwall Packaging Division, joined St. Regis in July, 1936. He was transferred to the Central District of the Multiwall Packaging Division in 1946 and was appointed sales manager of that district in May, 1949. When the Central District was divided into three districts in August of 1949, Mr. Woodcock was appointed manager of the Great Lakes District. He was named general sales manager of the Multiwall Packaging Division in 1954.

* * *

James O'Hear Sanders, who has recently returned from an extended study of a number of European countries and their economy, has joined **Hammer and Company,** Atlanta, Ga., business research organization. He will work with the fertilizer and chemical industry on market studies and plant site analyses.

Sales managers in the agricultural chemicals divisions of Olin Mathieson Chemical Corporation have been named by the company.

R. H. Hodgson, left, formerly in charge of domestic sales in the company's John Powell division is now manager, retail sales, of the Eastern Fertilizer division. Donald T. Fangmeyer, formerly manager of bulk superphosphate sales, is manager of the Eastern Fertilizer division's wholesale sales department.

G. D. Baerman, center, formerly with the John Powell division, is manager of agricultural sales in the expanded Insecticides division. Paul Williams is assistant manager. Alfred Weed, also formerly with Powell, is manager of the Household Sales department.

Both the Eastern Fertilizer and Insecticides divisions are headquartered in Baltimore.

In the Western Fertilizer division G. A. Wakefield, right, is sales manager and Paul F. Schowengerdt is assistant sales manager. David Dickey is sales manager for the Western Sulphur and Acids divisions. These divisions are headquartered at Little Rock, Ark.

OBITUARIES

Fred F. Coffee, 64, retired Florida division manager for Armour Fertilizer Works, died April 22 at Jacksonville, Fla. after a long illness.

J. Walter Cooper, retired former manager of Swift & Co. plants at Atlanta and LeGrange, Ga., died May 2 at Atlanta.

Waverly Summerfield Manson, 82, retired, one of the founders and first general manager of Farmers Cooperative Fertilizer Purchasers, Inc., Kenridge, Va., died April 3.

V. R. McCoy, president of The M. Hamm Company, Washington Court House, Ohio, died March 26.

Julian Young Williams, 76, who retired some years ago as vice president of American Agricultural Chemical Company, died March 25 in Richmond, Va.

Earl J. Willis, Western sales manager Nitrogen Division, died in San Francisco early last month.

your eye tells you why

International's New Triple Superphosphate so quickly received

unprecedented acceptance

In the fertilizer industry, few products have ever generated such ready and enthusiastic approval as International's new "fine-texture" Triple Superphosphate. When this new fertilizer ingredient was announced the first of the year, acceptance was immediate and widespread.

We at International appreciate your keen interest in this improved Triple Super . . . and your orders for it. They make the years of research and investment in developing this new product even more gratifying. If you have not yet had opportunity to see this new International product, we invite you to write the Phosphate Chemicals Division for samples and quotations.

Your first glance will tell you why its fine, uniform and virtually dust-free texture gives such improved results — promotes better granulation in high analysis plant foods — reduces the need to grind before mixing — assures thorough and more complete ammoniation.

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

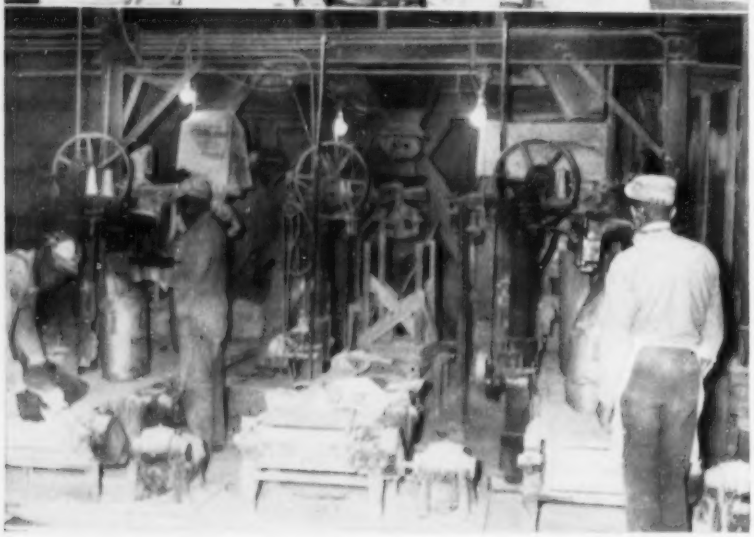
General Offices: 20 North Wacker Drive, Chicago 6

These pictures were made one windy March day at Lange Brothers plant in St. Louis. Included in the group are: Henry K. Lange, David C. Welch (Henry's son-in-law), Loren Davis, Ray Vorderstrasse, Ollie Suiter (Dewey K. Lange was out of town).

The picture at bottom was one Henry seemed to want particularly. So our photog climbed up, taking life in hands, while 3—or was it 4?—Payloaders whipped back and forth, grazing coattails and necessitating a two-step for self preservation! Guess no one could have surpressed a grin at that situation—especially Henry, who loves a joke. You know what we mean if you've heard his story about shipping a live goat to an unsuspecting friend. (Which reminds me of the man in New York well known for his elaborate gags, one of his most successful being his "Fertilizer-of-the-Month" operation. Seems he sent his apartment-dwelling buddies a letter informing them they had been made members of this unique venture through courtesy of a considerate friend on the West Coast. Then followed that up with 100 lb. sacks of manure to each victim with promise of a similar quantity of different fertilizer each month. His friends went nuts trying to dispose of the stuff in their geranium boxes and dreading the arrival of subsequent selections—which never arrived).

Lange Brothers products are held in high esteem among customers in their area. It was interesting to hear their comments as they came in to buy; one man said he had to have the same kind of fertilizer he got last year. "Grass like velvet," he said, "the minute you'd turn the corner my place was the only one you saw." And there were many more, a steady stream.

Severe drouth conditions for several years in the St. Louis area had demonstrated the value of fertilization in producing crops where otherwise there would be none; Henry said that the tests they had made at their own place offered arresting evidence of fertilizer's effectiveness during prolonged drouth periods.



ALABAMA

Ketona Chemical Corporation has announced that the **Fluor Corporation, Ltd.,** Los Angeles, has been awarded a further contract to design, engineer and construct facilities for the production of nitrogen solutions (ammoniated nitrate of ammonia) at Ketona's plant site near Tarrant and close to Birmingham.

These added facilities, in addition to the ammonia synthesis unit previously announced, will greatly improve Ketona's capacity to serve both agriculture and industry throughout the Southeast.

The Ketona plant, jointly owned by **Alabama By-Products Corporation, Birmingham,** and **Hercules Powder Company,** Wilmington, will begin production of ammonia in the late fall, while solutions production will follow early in 1956.

The Ketona plant is unique among ammonia plants in that it is the first plant in this country based entirely on coke oven gas, and this wholly new type of industry will diversify still further the industrial production of the Birmingham district.

ARIZONA

Cotton Chemical Co., Eloy, is more than doubling the size of its plant, with a $150,000 expansion program. Equipment will add to pesticide production, and includes a complete liquid fertilizer set-up. Owners are **D. K.** and **Kirke Purvis.**

CALIFORNIA

Stauffer Chemical's new plant at Vernon will be delivering the goods by the end of July, according to vice-president **John Stauffer.** The $1,000,000 addition to their fertilizer plant there will turn out 500 daily tons.

COLORADO

Rico Argentine Mining Co., are building a sulphuric plant at Rico, to cost $1,500,000 and to turn out 150 daily tons. **Monsanto** designed it. Leonard Construction is building it. The acid is destined for uranium mills in the area.

FLORIDA

Escambia Bay Chemical Corp. are building a $30,000,000 plant near Pensacola, and the output, ammonia, ammonium nitrate and other nitrogenous materials, will be sold exclusively by **Ashcraft-Wilkinson Co.,** Atlanta, Georgia.

Announcement of the Atlanta firm's appointment as exclusive sales agent for the Florida Company was made by **M. A. Abernathy, of** Shreveport, La., president of Escambia. Mr. Abernathy is also vice-president of **United Gas Corporation** which, together with **Electric Bond and Share** and **National Research,** will own the new petro-chemical company.

The only plant of its type on the Gulf Coast east of New Orleans, the Pensacola facility will serve Florida, Georgia, south Mississippi, south Alabama, and parts of South Carolina. Construction of the plant is already underway, Mr. Abernathy said, with actual production of ammonia and nitrogen products expected to start early in 1956.

Ammonium nitrate, anhydrous ammonia, nitric acid, nitrogen solution and other by-products will be manufactured at the plant for industrial and agricultural use, according to **George W. McCarty,** chairman of the board of Ashcraft-Wilkinson Company.

"We are extremely pleased to be associated with the Escambia Bay Chemical Corporation," Mr. McCarty said. "This tremendous new plant—the only one of its kind in this section of the South—will fill an important need by Southern industry and agriculture for these vital chemical products."

Ground was broken April 29, with formal ceremonies.

ILLINOIS

Illinois Farm Supply's Tuscola plant went into production early last month. Begun less than a year ago, and slated then to be a million dollar operation, it has grown to double that cost, with 80 employees instead of the 25 originally projected. Production of fertilizer will be up to 90,000 annual tons (according to plant manager **Ed Causey.**

The plant has direct sulphuric and sodium nitrate pipelines from nearby **U. S. Industrial Chemicals.**

Hy-Yield Soil Service, Mt. Carbon, are completing a building which will handle anhydrous ammonia fertilizers, in addition to the dry goods they have been handling.

* * *

Ashkum Fertilizer, Clifton, had production interrupted for several hours recently when high winds tore off a roof section, dropped it across 3300 volt power lines.

* * *

Macoupin Service Co., Carlinville, recently held open house in their new bulk fertilizer blending plant, with Professor **"Pat" Johnson** from University of Illinois as guest speaker.

* * *

Macon County Limestone Co. were granted permit, despite neighbor opposition, to mix inorganic fertilizers in its Decatur plant.

INDIANA

Hygro Liquid Fertilizer Corporation has established a plant in Converse to produce a balanced liquid fertilizer to any desired analysis. **Lloyd Baker** is local manager.

* * *

TEBCO Anhydrous Fertilizer Service, Inc. has established a bulk anhydrous ammonia storage plant at Tipton, with a 30,000 gallon tank. They will also distribute application equipment in the area for the **John Blue Company.**

* * *

Fischbach Brothers, Fowler, have purchased the Swanington anhydrous ammonia plant from **Olin-Mathieson** and will handle distribution for that area.

* * *

C.D.K. Liquid Fertilizer, Kitchel, were among those suffering damage when recent windstorms ripped through Indiana. But their damage was light, about $3,000, compared to what their neighbors suffered. The wind blew down a concrete block wall, and tossed a concrete block through a station wagon roof.

KANSAS

Onaga Fertilizer Co. has been established in Onaga by **Homer Heatherington,** featuring anhydrous ammonia and offering application service.

MAINE

Northern Chemical Industries has begun actual construction of the $9,000,000 anhydrous ammonia plant in Searsport which was reported in full in our February issue. Total capacity will be 43,750 annual tons of ammonia.

MARYLAND

Shea Chemical, Baltimore, last month announced a four-step construction program, designed to double its capacity for elemental phosphorous and sodium phosphates, to be completed by the end of next year.

The steps include: A second 20,000 ton phosphorous furnace at Columbia, Tenn.; a new phosphate rock washing and preparation plant in the same locality; a new $1,250,000 sodium phosphate and phosphoric acid plant in Dallas, Texas; enlargement of the present plant at Adams, Mass.

According to **Vincent H. Shea,** president, the program will run to more than $5,000,000. Engineering will be by their own staff.

MASSACHUSSETTS

Frazer-Burke have taken over the as yet unopened compost plant of Springfield in a $150,000 deal and plan to make it a center of garbage composting for a wide group of surrounding communities. The new major owners are **William H. Burke,** former Collector of the Port of Boston, and **Paul Smith.** The plant will operate under the Frazer patent which combines garbage with other ingredients to produce what is reputed to be an efficient, non-chemical fertilizer. The first output will be used in a test on shadegrown tobacco, which is a major crop in the Connecticut Valley. Ultimate output is slated to be 100 weekly tons.

MINNESOTA

St. Paul Ammonia Products, Inver Grove, now that the courts have cleared the way for rezoning over the objections of a group of future neighbors, has begun actual work on the $15,000,000 ammonia and nitrates plant reported here in March. **Central Farmers Fertilizer Co.,** will be exclusive distributor of

nitrogen products and a participant in operation.

* * *

Minnesota Liquid Fertilizer Company, Minneapolis, has set up bulk distributing plants in Sauk, Centre and in Benson.

MISSOURI

Missouri Farmers Association, under the program reported here in February, have begun setting up local plants, with local participation. A $70,000 plant is going up at Albany. Another, cost not stated but probably on the $35,000 level is under construction at Slater, with **Bill Ballew** as manager.

* * *

Atchison County Cooperative has built a $15,000 anhydrous ammonia distribution plant at Rock Port.

* * *

Jackson Plant Food Co., Jackson, has been purchased by the **Cape County Bureau Service Co.** which will render a custom application service of fertilizer to any desired analysis. The soil testing service will be continued.

* * *

Green Diamon Fertilizer, New Florence, has recently completed a bulk fertilizer blending tower, with equipment for delivery direct to trucks. The farmer asks for a certain analysis, and 30 minutes later it is delivered to his vehicle.

* * *

Skidmore Fertilizer Company, a liquid fertilizer operation, has been organized at Skidmore by **Paul Taylor** and **Lee Carter. Donnie Grahl** and **Carl Grahl, Jr.,** will operate custom application equipment in conjunction with the business.

MISSISSIPPI

Tennessee Corporation will establish a $150,000 fertilizer plant at New Albany, construction to start next month. Officials say plans call for a superphosphate addition at a later date.

* * *

Geigy Agricultural Chemical is centralizing in Leland the consolidation of offices formerly in North Carolina and Texas.

* * *

Spencer Chemical Company's president, **Kenneth A. Spencer,** has announced from Kansas City a $1,500,000 expansion in nitric acid and Spensol (ammoniating solutions) facilities at the company's Vicksburg, Mississippi, works. The expansion will be completed by spring, 1956, and will also include additional solution storage facilities.

The company's board of directors, after a careful study of several potential sites for this expansion, determined that the markets of the Southeastern United States could be best served by expanding facilities at Vicksburg for processing ammonia into solutions for manufacturers of mixed fertilizers.

At present the Vicksburg Works has sufficient nitric acid and Spensol capacity to convert sixty percent of the anhydrous ammonia produced at the works into Spensol solutions. Mr. Spencer stated that a portion of the ammonia produced at Vicksburg will continue to be marketed as such, but the new expansion will permit, if desirable at certain seasons of the year, the conversion of all the ammonia production to solutions, thereby providing greater flexibility and improved customer service.

The Vicksburg expansion will complement the construction of nitric acid and Spensol facilities now underway at the company's Henderson, Kentucky, ammonia works. The completion of the Henderson expansion is expected by July, 1955, at which time the company will be shipping ammoniating solutions from Henderson, Ky., Vicksburg, Miss., and Pittsburg, Ks.

MONTANA

Montana Agriculture Chemicals, Inc. has been established at Bozeman by **Leonard W. Johnson, George W. McKean** and **Lyman H. Bennett, Jr.** with $50,000 authorized capital.

NEBRASKA

Curry Chemical Co., wholly owned **Phillips** subsidiary has announced plans for immediate construction of a 40 daily ton liquid mixed fertilizer plant near its dry fertilizer mixing facilities at Scottsbluff.

The new plant, which will be equipped to produce liquid fertilizers containing the basic plant foods will be primarily a developmental facility to provide fundamental information on the subject and to acquaint interested fertilizer distributors with the techniques and economics of liquid mixed fertilizer manufacture and marketing. The plant is expected to be in operation soon.

* * *

Farmers Union Oil Assn. liquid nitrogen fertilizer operation at Comstock is in business.

* * *

Wagner Mills has established a 22,000 gallon liquid fertilizer plant at Schuyler, being supplied with Spensol.

North Platte Fertilizer Company, North Platte, has been established as an organic fertilizer processing operation by **Albert Interholzinger** of North Platte Packing Co., and **Frank Interholzinger,** using byproduct of the local feed lots, with 9 daily tons as capacity.

* * *

J. D. and L. Fertilizers Inc. has been incorporated at Magnet by **Reuben Johnson, Floyd R. Dawson** and **Melvin Lindahl,** with $50,000 authorized capital.

* * *

Stauffer Chemical Co., San Francisco, has purchased a 15-acre tract near Omaha as the site for a plant for production of agricultural chemicals, insecticides, and fumigants. Construction is scheduled to start this month. Cost of the warehouse and plant facilities is expected to be near $400,000.

NORTH CAROLINA

Nitrogen Incorporated has made the first step in what is expected to be a $100,000 program at Farmville in the field of liquid fertilizers. Present equipment consists of a 30,000 gallon anhydrous ammonia tank. Other solutions will be added.

NORTH DAKOTA

Minnesota Liquid Fertilizer, Minneapolis, Minn. has established a bulk distributing plant at Breckenridge to handle anhydrous ammonia.

OHIO

Green Belt Chemical Co., Cincinnati, has been chartered to manufacture and sell commercial fertilizers, with $200,000 capital. Plans are to establish a plant "in northern Ohio." Incorporators are: **N. E. Miller** and **Walter R. White.**

VIRGINIA

Smith-Douglass' new headquarters office building in Norfolk is progressing well, they report. Modern in design, the two story building will have a 245 foot frontage on Virginia Beach Boulevard, outside the city limits. It is located in a natural wooded setting on a 24.8 acre site, and is of limestone and marble construction.

Served by a parking lot sufficient to care for employee and visitor needs, the new building will contain recreation and meeting rooms, among other employee facilities. Approximately 30,000 square feet of

"A Bird in the Hand Is Worth Two in the Bush"

And a Bag in Your Plant Is Worth Two on Order

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floor space will be utilized by the home office staffs of Smith-Douglass and the Coronet and Smith-Rowland divisions. Expected occupancy date is by the end of 1955.

WASHINGTON

Natural Fertilizer corporation will invest $100,000 in a mixing plant at Ephrata. **Harry Hill,** sales and service representative, said that the firm expects to be in production in April.

The corporation has leased from the city a warehouse at the airport and will mix all types of fertilizer there, using as a base calcium carbonate with trace minerals which it will mine near Pateros.

Nitrates, phosphate, potash, sulphur, zinc, boron and other materials will be added at the plant to meet requirements of specific farms or districts as determined by soil analysis in the firm's laboratory.

The product will be distributed to retailers under the trade name of Chief Joseph.

WEST VIRGINIA

Westvaco's new $2,500,000 ammonia unit under construction in South Charleston will go into production this Fall, according to division manager R. J. DeLargey.

WYOMING

Jefferson Lake Sulphur is in production with its sulphur recovery plant at Manderson. The plant now produces 150 daily long tons and is designed for expansion to 450 tons. It recovers sulphur from sour natural gas from Socony-Vacuum nearby.

CANADA

Commercial Solvents' participation in **Northwest Nitro-Chemicals Ltd.,** a Canadian company located in southern Alberta which will produce high analysis chemical fertilizers, was clarified by J. Albert Woods, President. CSC will operate the new company under a long term management contract. Initial operation is scheduled for early 1957. Consumption of Northwest Nitro-Chemicals' output will be in the fast growing agricultural areas of the Canadian prairie provinces and the northwestern United States.

* * *

Sani-Pulp Corporation, Montreal expects to complete by July the plant now being erected at LaSalle, to produce fertilizer, soil conditioners and other products from refuse.

SOHIO BUILDING $17,000,000 PLANT

In this picture Edward F. Morrill, president of Sohio Chemical Company, breaks ground with the Company's $40,000,000 "silver shovel" used in groundbreaking ceremonies for units of that value at the Lima Refinery and other Sohio units in recent years.

Other Sohio Chemical Company officials shown, on the left is: Hubert H. Tucker, director of agricultural service, and on the right is: Henry S. Coleman, sales manager.

The Sohio Chemical Company, a newly formed subsidiary, will market the products of the $17,000,000 petrochemical plant of The Standard Oil Company (Ohio), now under construction at Lima, Ohio, it was announced today by Clyde T. Foster, president of the parent company.

Rapid progress on the new Lima plant indicates it will be completed on or ahead of schedule in early November, according to Edward F. Morrill, president of Sohio Chemical Company.

The plant will manufacture anhydrous ammonia, urea, nitric acid and nitrogen solutions and first shipment of products is expected for January 1, according to Henry J. Coleman, sales manager, and Hubert H. Tucker, director of agricultural services.

The home offices of the new company will be at Lima and Clifford D. Shields has been named assistant secretary and assistant treasurer.

INDIA

Parry & Co., Ltd. have been licensed by the Indian Government to establish a fertilizer factory at Tadepalli to produce superphosphate.

IRAQ

The Ministry of Economy advocates government financing of a potash extraction project on the Dead Sea, which will require four million pounds Sterling initial investment, with a 4% guaranteed annual profit to investors.

MEXICO

Chemiebau. German construction concern is completing two new sulphuric plants near Mexico City, both using the contact process. One is for Alkamex, S. A. with 20 daily tons of 98% acid; the other for Magnesio, S. A. has a 30 daily ton capacity.

* * *

Mexican Gulf Sulphur has made its first shipment from the plant on the Isthmus of Tehuantepec.

PUERTO RICO

Gonzalez Chemical Industries, Inc. has completed financing plans for

the construction of a $12,250,000 anhydrous ammonia plant and other integrated facilities in Puerto Rico, **Luis R. Gonzalez,** president of Gonzalez of San Juan, Puerto Rico, announced April 26. This marks another milestone in the industrialization program of Puerto Rico. In terms of investments, the project will be the second largest new industry there.

The financing was arranged by **Glore, Forgan & Co.** Four mainland insurance companies—**Northwestern Mutual Life Insurance Company,** Milwaukee, Wisconsin; **State Mutual Life Assurance Company,** Worcester, Massachusetts; **Bankers National Life Insurance Company,** Montclair, New Jersey and **The Colonial Life Insurance Company** of America, East Orange, New Jersey, are major participants in the financing. Other participants are the **Government Developing Bank** for Puerto Rico, the **Puerto Rico Industrial Development Company** and the **Royal Bank of Canada.** This is the first time that mainland insurance companies have financed a new industrial project entirely sponsored by Puerto Rican interests.

The plant site for the new industry will have deep-water facilities on the Bay at Guanica on Puerto Rico's south coast. The anhydrous ammonia plant is designed to produce 42,000 tons per year, part of which will be sold as such to meet the growing demand in the Island for anhydrous ammonia. The balance will be converted to aqua ammonia, sulphate of ammonia and possibly other products for use by agriculture and other industries.

The Lummus Company, New York, is designing and will construct the plant. **Cox & Weinrich,** Washington, D. C. are consulting engineers.

VENEZUELA

The Government has allocated $6,000,000 for construction of a petrochemical plant at Puerto Cabello, and the CVF power corporation has been instructed to build the necessary 60,000 KW power plant to supply the power that will be needed.

CROP CHEMICALS

The Pacific Coast Borax Co.'s agricultural sales division announces the introduction of DB-Granular, a weed killer specially designed for agricultural weed problems including deep-rooted noxious perennial weeds. DB-Granular is a complex of disodium tetraborate and 2,4-dichlorophenoxyacetic acid. This new herbicide is applied in dry form just as it comes from 50 lb. multi-wall paper sacks. DB-Granular for agricultural use is a companion product to the Company's new Ureabor introduced last month for industrial weed problems.

* * *

Olin Mathieson Chemical Corporation is establishing a network of insecticide warehouses throughout the Mid-West, **S. Y. Roth** of St. Louis, sales manager of the company's North Central District, has announced.

One of the warehouses will be in St. Louis. Other warehouses will be at Mason City, Burlington and Des Moines, Iowa, Kansas City, Kans., Sioux Falls, S. D. and Omaha, Nebr.

* * *

Millions of people learned the success story of aldrin and dieldrin when they read the April issue of Coronet Magazine in an interesting story entitled, "New Bug-Killers for Home and Garden." The "good sisters," as aldrin and dieldrin are referred to in the article, will "make kitchens cleaner, lawns greener and vegetable or flower patches infinitely more productive."

* * *

NEMAGON, NEW SOIL FUMIGANT FOR CONTROL OF NEMATODES—An old time "recipe" given by an early day horticultural commission in the late 1890's was brought to our attention as a contrast to the news of **Shell Chemical Corporation's** new soil fumigant, Nemagon. For control of pests 60 years ago, the Board of Horticulture of a western state was recommending "Solution No. 1," made as follows: "Take two gallons of water, put into this one-pound sulphur, one-pound concentrated lye, boil for two hours, then add ½ gallon fish oil, boiling until it makes a hard soap; add ½ gallon kerosene oil, stir well and boil a few minutes; add to this 8 gallons of water for dormant spray." Imagine any grower cooking up such a "recipe" now!

* * *

Introduction of parathion and other new phosphorus insecticides revive hope that pear growers may have found the answer to their worst insect problem.

For many years they have been waging a losing battle against insect pests, particularly the pear psylla, says **Prof. F. G. Mundinger,** Cornell entomologist at the Experiment Station at Geneva, N. Y. "Failure to control psylla at a reasonable cost has been a chief cause for waning interest in pear growing in this State," he declares.

Tests at the Experiment Station now reveal that dinitro sprays are especially toxic to the eggs and the young of the psylla. Parathion and some other phosphorus insecticides are highly toxic to both the eggs and the adults, says Professor Mundinger.

* * *

Stauffer Chemical Co., New York, has completed an expansion of its Bayonne, N. J., plant for manufacturing, processing and formulating insecticides. The expansion program includes the installation of additional units to increase the air milling capacity of the plant as well as a modern unit for the formulation of liquid insecticides.

* * *

American Chemical Paint Co., Ambler, Pa., has announced a new herbicide and fungicide Amizol (Aminotriazole), a chemical formerly used in manufacturing photographic film.

According to preliminary experi-

INDUSTRY CALENDAR

Date	Organization	Place	City
June 13-15	NFA-APFC	Greenbrier Hotel	White Sulphur Spgs.
June 28-30	Pacific N.W. Conference	Boise Hotel	Boise, Idaho
July 14-15	Southwest Grade Hearings	Buccaneer Hotel	Galveston, Texas
Aug. 14-19	ASA-SSSA	————————	Davis, Cal.
Oct. 17-18	Fertilizer Safety Section	La Salle Hotel	Chicago, Ill.
Oct. 27	Middle West Soil	Sherman Hotel	Chicago, Ill.
Nov. 7-8	California Fertilizer Assn.	Mark Hopkins Hotel	San Francisco, Cal.
	1956		
Jan. 4-6	Weed Society of America	New York Hotel	New York, N. Y.

ments, the chemical may be the first antidote devised for many crop plagues, ranging from quackgrass in corn to Canada thistle in pastures, according to the company. It will be used on a wide scale against quackgrass and nutgrass. Aminotriazole has also met with success as a brush killer, and has been used effectively against ash, poison ivy and certain oaks.

The chemical achieves its effect by interfering with the chlorophyll supply, stunting growth and sickening the susceptible weed. It is not poisonous to humans or animals and dissipates in most soils rapidly.

* * *

Methyl parathion, an organic phosphate insecticide recommended for the control of insects and mites on cotton, now is available in commercial quantities from **Monsanto Chemical Co.'s** organic chemicals division.

The compound is said to be effective in controlling the various species of aphids and mites when properly formulated and applied either as a liquid or a dust. It also is of value for boll weevil control, according to Monsanto.

* * *

A $2,500,000 chlorine and caustic soda plant now under construction by the **Electrochemical Industries** (Frutarom) Ltd., on a seventy-five acre site ten miles north of Haifa, Israel, will begin production toward the end of this year.

Maximum daily output will include 8.3 tons of caustic soda and 7.5 tons of chlorine, 3 tons each of hydrochloric acid 33% and Eau de Javel 10%, 5 tons of benzene hexachloride 13% gamma.

The basic raw materials, chlorine and caustic soda, will be produced by electrolysis of sodium chloride or potash, using a recycling brine system and the mercury cell process. The raw materials, salt and potash, are available in Israel in abundant quantities.

WEED SOCIETY OF AMERICA ACCEPTING CHARTER MEMBERS

The Weed Society of America was founded at Fargo, North Dakota on December 8, 1954. The formation of this Society grew out of the action of the Association of Regional Weed Control Conferences. The North Central, Northeastern, Southern and Western Weed Control Conferences, through resolutions, directed their delegates to the Association to develop the framework for organizing the Weed Society of America.

The delegates adopted a temporary constitution for the Society which is to be used until the time of the charter meeting of the Society in New York City in January 1956. It was further decided by the delegates that all persons joining the Society during the calendar year of 1955 would become charter members and that a permanent constitution would be considered at the 1956 meeting.

The object of the Society is to encourage and promote the development of knowledge concerning weeds and their control through publishing research findings, fostering high standards of education, encouraging effective regulation, and promoting unity in all phases of weed work. The Society is dedicated to cooperate closely with regional weed control conferences in these endeavors.

The membership of the Society is open to individuals and organizations of all nations interested in its objectives.

All persons who are interested in becoming charter members of the Society should write for a membership application form to Dr. W. C. Jacob, University of Illinois, AES, Urbana.

The officers of and delegates to the Association of Regional Weed Control Conferences are to serve as the Executive Committee of the Society until the election of officers by the Society at the business meeting in New York in 1956. Officers reappointed to serve during the organizational period were: R. H. Beatty, President; W. B. Ennis, Jr., Vice-president; and W. C. Shaw, Secretary-Treasurer. The first meeting of the Weed Society of America will be held on January 4, 5, 6, 1956 at the Hotel New Yorker, New York City, New York.

A new type agricultural tank sprayer, the Agi-Sprayer, is capable of mixing and applying all soluble and liquid materials, as well as many non-soluble materials in suspension, hitherto believed to be unsuited for spray application, according to its manufacturer. The new unit has been developed by Nutritional Concentrates, Inc., New Lexington, Ohio, who last year introduced equipment for applying similar materials through sprinkler irrigation systems.

In extending the benefits of fast, low-cost crop spraying, the Agi-Sprayer offers several spraying methods to suit a variety of purposes and conditions. Its adjustable spray booms permit field applications of lime, soluble fertilizers, grass and legume seed, etc., at rates in excess of 50 acres per day. Foliar feeding and spraying of trees, bushes and vines is accomplished through a simple hose attachment. For "fertilirrigation"—simultaneous fertilizing and irrigating—or for treating root systems, one or more sabre type root feeders are attached to the hose outlets.

A major advantage claimed for the Agi-Sprayer is that it permits complete control of soil pH, as well as of the availability of major elements and trace minerals. Sudden mid-season deficiencies can be averted or corrected instantly upon detection.

The Agi-Sprayer derives its name from the action of five "hydra-hose" agitators which keep its contents in a constant state of violent turbulence under hydraulic pressure. Besides accurately proportioning solubles and liquids, this powerful agitation keeps non-soluble materials, such as hydrated lime and wettable powders, in suspension for uniform spreading. A Gorman-Rupp pump activates the circulation system; the tank has no internal moving mechanical parts.

The Agi-Sprayer is made in two regular models, with 500-gal. and 1,000 gal. corrosion-treated tanks.

Plant Landscaping Competition

The third annual competition for industrial landscaping awards for the year 1956, is announced by the American Association of Nurserymen. The awards are presented for "achievement in industrial landscaping and beautification contributing to employee and civic pride in our American heritage." The awards to date have been won by 50 companies and institutions, many of the companies being leaders in their respective industries.

Industrial firms wishing to enter the competition should write for a pamphlet describing the award rules to the American Association of Nurserymen, 635 Southern Building, Washington 5, D. C. Entries must be received by September 1, 1955, for the awards which will be formally presented shortly after January 1, 1956.

NO WARM-UP WITH WEATHERLY GRANULATION PLANTS

Five granulation plants, in the Mid-West and South, all completed within the past few months, have these things in common:

- They reached designed capacity from the start, without any warm-up or adjustment period.
- They stay on the designed capacity.
- They turn out a high quality, high volume, guaranteed production with the lowest cost raw materials.
- They are built with the highest quality, heavy duty equipment.
- THEY ARE ALL WEATHERLY CONTROLLED-GRANULATION PLANTS.

THE WEATHERLY PACKAGE

The Weatherly Process, with its exclusive control features.

Weatherly designed equipment, built to do the job accurately, economically.

Weatherly supervision of installation, and operation; instruction of personnel.

Continuing service.

In addition to the 5 plants in operation now, four more are nearing completion or in various stages of construction or design. . . .

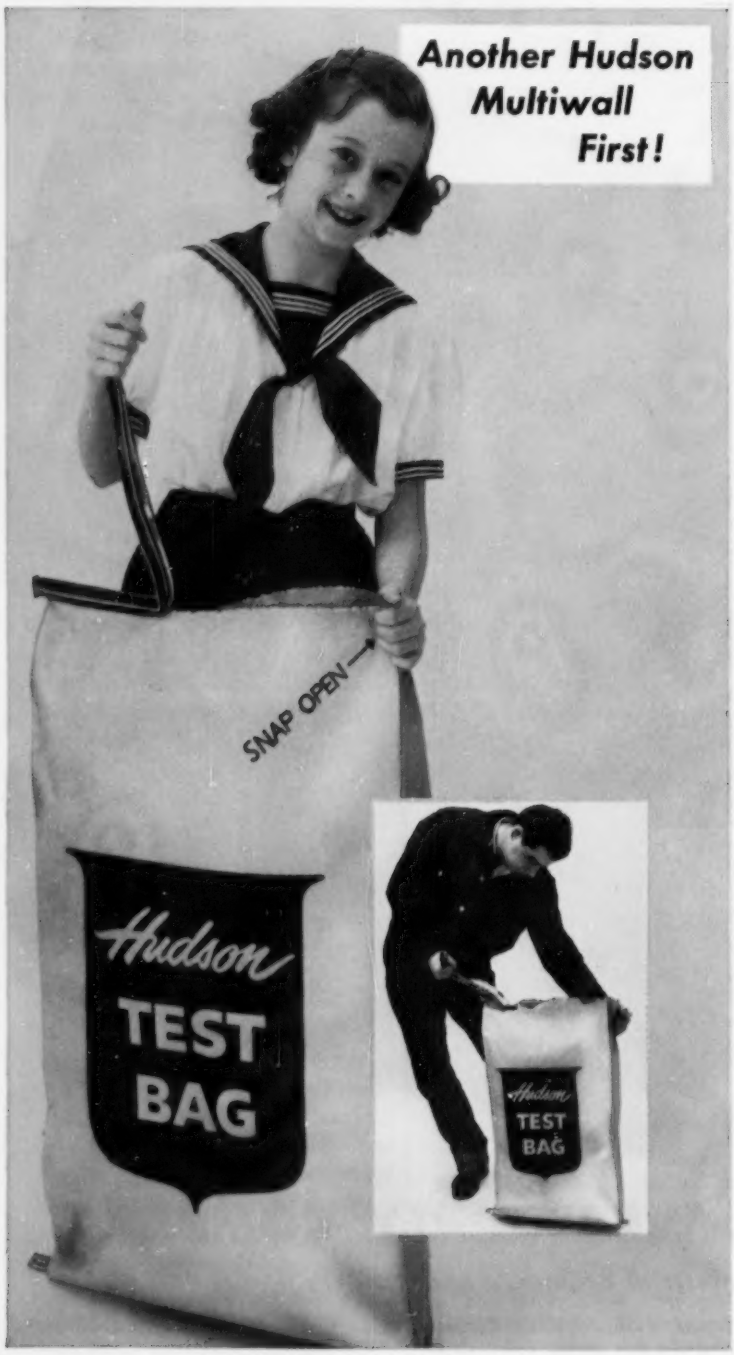
We would be glad to discuss conversion of your plant — 20 to 50 tons per hour — via the Weatherly "Package."

The D. M. WEATHERLY COMPANY

Industrial Engineers and Builders

830 Ponce de Leon Ave., N.E., Atlanta, Georgia PHONE: ELgin 8384

New Snap-Open® Sack
OPENS EASIER, FASTER



SNAP-OPEN SACKS . . . so easy to open that a 10 year-old girl actually outspeeds an experienced hand working with a conventional bag!

Boost Your Sales With The Bag That Offers Customers Double Economy

Economy number one: Here's a bag that opens so easily even a 10-year-old girl can open it, and this ease of handling means *faster* handling for your customers with more units per day per man!

Economy number two: Reduced product spilling means real savings for your customers when *you* use the new Snap-Open Sack, the bag your customers will begin to demand after your very first shipment.

Yes, *you* offer multiple advantages to your customers when you bag your product in the Snap-Open . . . advantages that will result in increased sales and customer satisfaction.

Hudson actually went out into the field and asked your customers what they wanted in a multiwall bag. Their answer: a multiwall that would open easily, quickly. The result: the Snap-Open Sack—the bag that opens in an instant, gives you pour-control from a thimble-ful to a hundred pounds, by simply opening the bag a few inches or all the way!

Be among the first in your industry to cash in on this newest multiwall bag which Hudson is pre-selling to customers in farm magazines such as Capper's Farmer and Progressive Farmer, as well as other national consumer publications.

THAN ANY OTHER BAG

PULL AND TUG DAYS of opening bags are over! Actual light tracing photo shows how knife blades and pull-and-tug method *(left)* actually waste both time and product, while easy snap motion opening of new Hudson multiwall saves time and saves product.

SIMPLE BUT DRAMATIC demonstration of Snap-Open's *controlled* pouring is seen in these two photographs. With Snap-Open, spilling is at a minimum, pour-rate can be accomplished as desired from a thin stream to a hundred pounds.

Mail this coupon for free folder and information about the Snap-Open Sack.

Hudson Pulp & Paper Corp., Dept. CF5
477 Madison Avenue, New York 22, N. Y.

Yes, please send further information on Snap-Open Sacks and how I can use this new development to increase my sales.

Name_____ Title_____

Company_____

Address_____

City_____ Zone____ State_____

TAMPA—FERTILIZER CENTER

Recent "pop" calls in passing through Tampa, produced among the fertilizer manufacturers there, a .400 batting average—5 calls, 2 interviews. With the season about over, it was a pretty good average. Customers and the general public are sure to approve of the attractive plant offices there, three of which are shown below.

At top is the office of Peninsular Fertilizer Works, Division of Wilson & Toomer Fertilizer Co., a modernistic brick building with an orange grove in the back. A new four-lane highway is currently under construction along the plant property and a new bridge now completed over the ACL railroad is right at the plant site. Center, the office of Gulf Fertilizer Co. Last year they added a materials assembly hopper system and a 1½ ton mixing and basing unit; also an automatic I & C. bagger and bulk loading for trucks, engineered by Atlanta Utility Works. Bottom, Lyons Fertilizer Company office. This past summer Lyons installed an assembly hopper, automatic bagger and bag loading equipment to trucks.

A. D. ROTHWELL
Superior Fertilizer & Chemical Co.
Tampa, Fla.

During a recent interview he told us they had put in bulk loading facilities about a year and a half ago; now about 50% of their sales are in bulk (no longer is the plant 100% cooperative, as they sell to "anybody who has the money"). A large portion of their business is in prescription mixes; for instance, they offer 36 regular formulations for pasture and, of course, a good portion of their business is in prescription citrus fertilizers. Their season works out well with three heavy months in February, May and November—enabling them to give year-round 40-hr.-week employment to all personnel. This is something unusual in the industry, but can be attributed primarily to the spread in their peak seasons.

Superior also operates a plant at Ft. Pierce, Fla., which they acquired last fall.

O. H. MAXWELL
West Coast Fertilizer Co.
Tampa, Fla.

When interviewed recently he said that their tonnage was a little off from last year, but accounted for in one large account where sales decreased. On controllable sales they showed a small increase over last year, and profit-wise are pleased with this year's operation. He commented on Florida's new reporting system as compared with tax tag system formerly used by the state. His firm has shown substantial savings not only in the actual cost of the tags themselves, but the new system has affected a savings in inventory accounting and audits, eliminating keeping money tied up in tags. Mr. Maxwell, like most of us, has kept his nose to the grindstone for a number of years, giving the fertilizer business all his time and attention. However, last year he decided to take a more active interest in civic and church affairs. Mr. Maxwell's church, one of the larger ones in Tampa, was at that time establishing a drive-in church service, similar to drive-in theatres, which have grown so in popularity—and he has been a real factor in developing this branch of his church. He is very proud of the attendance so far this year which has been about twice the average last year. As a result of his work, he has been elected chairman of the Church Board—something of a record in itself for a member of less than two years.

GOING GRANULAR?

switch to KRAFT-lok® bags!

89.6% of our customers who used L. C. Sleeves and other internal sleeve type bags have switched to KRAFT-lok — without any increase in cost.

The integral construction of this exclusive Kraft Bag feature solves all those tricky closure problems peculiar to bagging granular material.

KRAFT-lok also gives you the extra extension, the extra protection, and the extra production you simply cannot get in conventional type valve bags.

For demonstration without obligation . . . fill out coupon below, attach to your Company letterhead and send to us at once:

NAME_____

TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE____ STATE____

10 good reasons

why packers of granulated fertilizer prefer KRAFT-lok Bags:

1. Eliminates snagging on packer tubes.
2. More flexible valve area improves bag handling.
3. Prevents torn sleeve particles from contaminating material.
4. Speeds up filling operations by more efficient "venting."
5. Slows up spilling in filling.
6. Reduces leakage in closing.
7. Actually seals material inside bag automatically.
8. Minimizes sifting in handling.
9. Makes a cleaner, more satisfactory package in all ways.
10. Saves dollars all around.

Gilman PAPER CO.
• St. Marys Kraft Corp.
• Gummed Tape Div.
• The Gilbreath Corp.
• Kraft Bag Corp.

KRAFT BAG CORPORATION

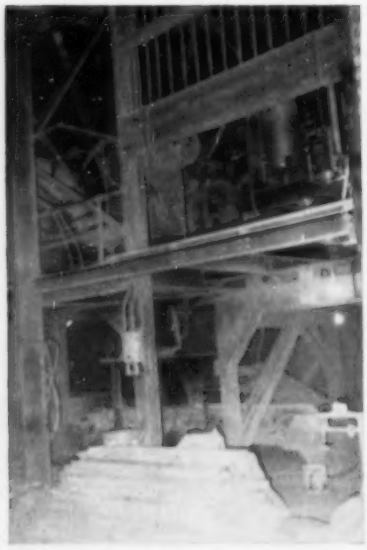
Gilman Paper Company Subsidiary

630 Fifth Avenue, New York 20, N. Y. • Daily News Bldg., Chicago 6, Ill.

1 Responsibility
2 Integrated Plants
3 Generations of Bag Experience

Panel above pictures Merchants Fertilizer & Phosphate plant at Pensacola, Fla. from three different positions along the highway. At left is photo taken from office entrance, with plant in background; at center, shot from truck drive into plant grounds; at right, picture shows both wings of the plant—the wing at the right is for storage, and the wing at the left is for bagging, loading, etc. Center section of the building joins the two wings at the rear, and contains hopper system, mixer and related machinery.

They "Beat the Clock"



This photo shows the modern mixer section, featuring a nine-cluster hopper unit and a 1½-ton mixer with automatic solutions equipment.

From embers to operation in six months' time—that's the story of this Pensacola plant, now completing its first season . . .

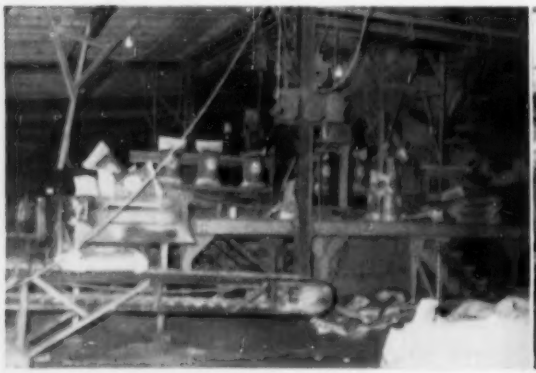
Well located on U. S. Highway 29 and the L. & N. Railway at the northern outskirts of Pensacola, Florida, is the new plant of Merchants Fertilizer & Phosphate Co. of Pensacola, Inc. Not quite completed to operate at the beginning of their fall '54 season, the plant did get under way in November and this month winds up a busy season, one in which sales this year equal last season's despite a delayed start and adverse weather conditions.

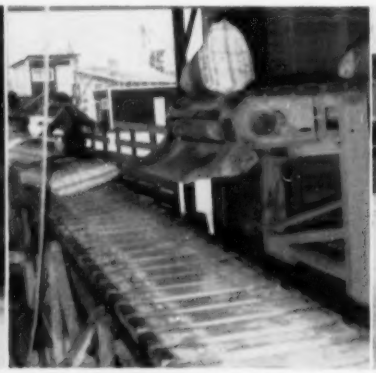
Most of Commercial Fertilizer's readers will recall that last year on the evening of May 7, a devastating fire, fanned by brisk winds, destroyed the former plant. But immediately, plans got under way to rebuild, the contract going to Atlanta Utility Works for engineering and equipping a new and modern plant.

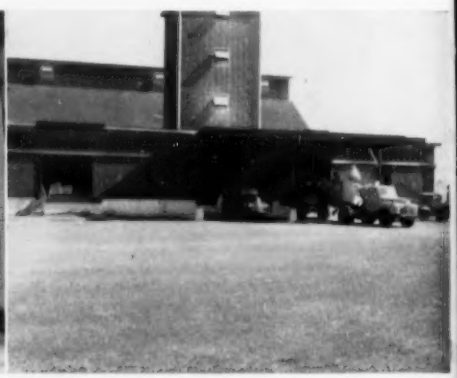
The old plant was made up of numerous additions each made to expand the facilities needed for the company's growth. At the time of the fire the plant covered a large portion of the 5-acre site. The new plant covers only two-thirds the area of the old plant and requires half the labor to turn out the same (or more) production.

Accompanying pictures tell much of the story, show exterior and interior views. The plant has unload-

Panel below shows bagging and loading facilities. Mixed goods are moved from storage bins with bookshelf separators by tractor shovels into elevator feeding bagging unit. The plant's two bagging units are equipped with St. Regis automatic open-mouth baggers. Picture at left shows bags coming from bagging unit along conveyor to cross-conveyor. Center photo shows bags falling from cross-conveyor onto loading conveyor; mounted on a rail system, the loading conveyor can be extended out over a truck body to carry bags right up to the cab section, and is gradually withdrawn as the truck is loaded, so that it delivers each bag in the load to the point where it is to be placed on the truck. Photo at right shows trucks at bagged goods loading dock, protected by extra deep shed with canted roof to carry rain water away from cab; a similar loading shed for bulk trucks is located to the left of this position, toward the rear of the plant.







Moultrie Clement hails from Charleston, graduated from The Citadel, spent most of his business life in Pensacola, is president of Merchants Phosphate & Fertilizer Co.

Moultrie Clement and Moultrie III are shown aboard the "Delores" with Pensacola Yacht Club in background. Moultrie's yacht "Delores" is his heart—and well named. She's trim, completely appointed, attractively furnished. As you step aboard "Cap'n" Clement will show you the complete galley, crew's quarters, bedroom, bunkroom, complete bath (hot and cold running water), living room, open deck for fishing (fore and aft), bridge complete with ship-to-shore phone, depth recorder, radio transmitter. Incidentally the depth recorder reveals hollows on the ocean floor, helps you pick spots to fish by showing strange little blips that indicate schools of fish (if you know how to read it).

ing facilities for raw materials from rail cars to storage in the building by overhead belt conveyor system.

Mixing is done through a modern 9 cluster hopper unit and through weight scale to mixing unit which has 1½ ton mixer with automatic solutions equipment. Mixed goods are elevated to overhead belt system to storage.

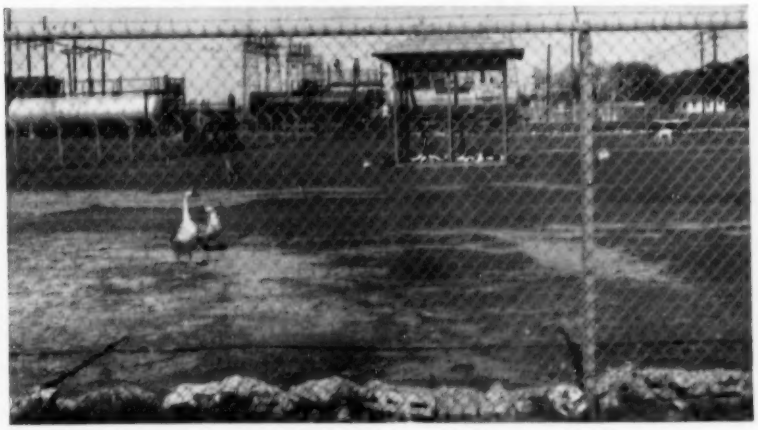
The plant has 2 bagging units with St. Regis automatic open mouth baggers and Union Special sewing machines. Bags are delivered direct to trucks from sewing machines by conveyors. The plant is also equipped to load bulk fertilizers in spreader trucks.

All equipment minimizes labor and handling.

The company has been in operation in Pensacola since the early thirties. Moultrie J. Clement is president and general manager; M. J. Clement, III, is vice-president, and Malcolm C. Brown is secretary.

Perhaps you will remember Commercial Fertilizer's story and pictures of the Kodiak bears Moultrie and his son, Bunkie, shot during a hunting trip to Alaska a couple of years ago. Here they are, stuffed and mounted, and housed in a special building (for preservation and display). The building has one side glass-plated and spotlights turned on at night show the bears in bold relief, easily seen by motorists on the highway.

Here's an interesting feature of Merchant's. Since Pensacola has no municipal zoo, the company maintains on its property a small zoo for the benefit of the general public—which includes several species of deer and various rare birds. Kept in a spacious enclosure adjoining the plant, the area extends along the highway from which it is clearly visible. However, the birds and deer, being small, are hard to spot in our picture which shows almost the entire area.



Liquid Fertilizer Booklet Offered by Victor

The second edition of an 8-page booklet on "Preparation of Liquid Fertilizers" is now being offered by Victor Chemical Works.

The brochure outlines methods of preparing liquid fertilizer solutions, describes equipment necessary for handling formulation and storage and gives data for batching typical analyses.

A copy of the booklet may be obtained by addressing Victor Chemical Works, 155 N. Wacker Dr., Chicago 6, Ill.

New Crane Announced By Link-Belt Speeder

A self-propelled, one-man operated, rubber-tired utility crane is being introduced by Link-Belt Speeder Corporation, Cedar Rapids, Iowa.

The manufacturer states that the machine, with true power hydraulic control offers unique advantages previously unknown to utility cranes. Designated as the UC-68, with 15-tons lifting capacity, the crane is an addition to the broad line of Link-Belt Speeder crawler and rubber-tired shovel-cranes manufactured at Cedar Rapids, Iowa.

S. C. Fertilizer Meet Scheduled For June 2

Fertilizer manufacturers, dealers and salesmen operating in South Carolina have been invited to attend the annual Fertilizer Meeting at Sandhill Experiment Station, located on U. S. Highway 1, 14 miles northeast of Columbia, S. C. on Thursday, June 2. The one-day program will feature a tour of the station and a few brief talks.

life to crops; **death** to insects

You can give new life and added vigor to your fruits or vegetables — and kill harmful insects at the same time — by adding GRACE UREA PRILLS to your regular pesticide sprays.

It's the simplest and quickest way to give your crops the supplemental nitrogen they need — over and above what is supplied to them in mixed fertilizers.

GRACE UREA PRILLS' fertilizing power — an unsurpassed 45% nitrogen — is full strength and quickly absorbed by foliage. You get top efficiency, because roots absorb any spray dropping to the ground. And GRACE UREA PRILLS are compatible with any commonly used spray material. This fertilizer is safe to handle, dissolves readily and does not corrode or clog spray equipment.

Suggested amounts for mixing with pest-control sprays are given in the chart at the right. Less concentrated solutions may be used, depending on the frequency of spraying and the specific nitrogen needs of your particular crop and soil.

Pounds GRACE UREA PRILLS suggested per 100 gals. Spray

VEGETABLES	LBS.
Tomatoes, cucumbers, cabbage, cauliflower, celery, lettuce, peppers, snap-beans, sweet corn, strawberries	4-5
Sweet potatoes	5-10
Potatoes	15
Carrots, parsley	20
FRUITS	
Apples	3-5
Cherries	5
Citrus	5-7½
Plums and prunes	10

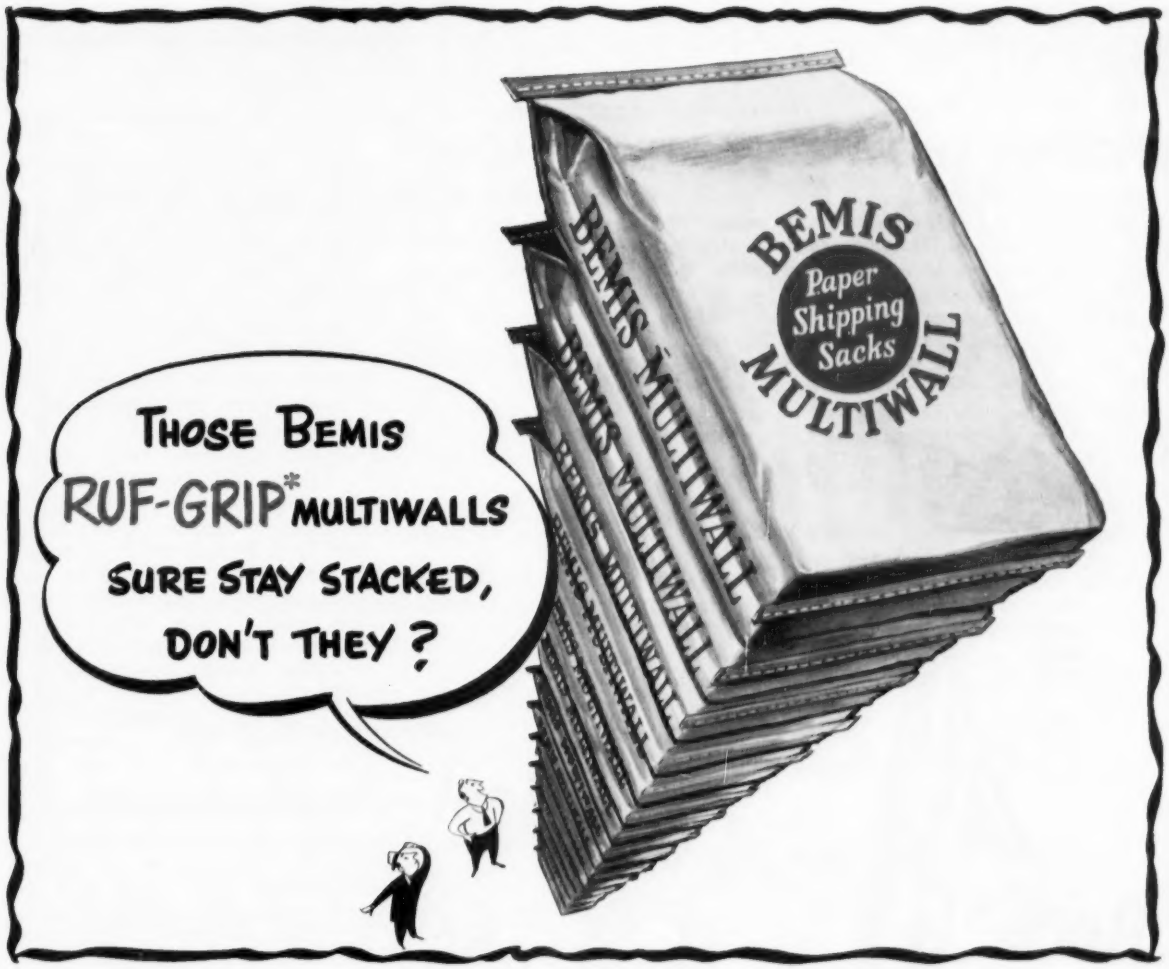
USE GRACE UREA PRILLS FOR ALL TYPES OF CROPS • IN IRRIGATION WATER • AS A TOP-DRESSING OR SIDE-DRESSING • WHEREVER NITROGEN IS NEEDED

AVAILABLE IN 80 LB. MULTIWALL SACKS FROM YOUR LOCAL DISTRIBUTOR

GRACE CHEMICAL COMPANY

HANOVER SQUARE, NEW YORK 4, N. Y.

Atlanta, Ga. • Chicago, Ill. • Memphis, Tenn.



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SNOWMELT

FIGURES SHOW LOW STREAMFLOW

The interesting annual report of USDA on the snow melt expectation and its effect on the rivers of the heavy snow areas is of interest to farmers in those regions, and hence to the fertilizer industry. Following is the report issued by USDA April 22, 1955:

"Streamflow from snow melt will be less than average in the major river systems of the western states during the 1955 irrigation season, the U. S. Department of Agriculture reported today.

"The Soil Conservation Service's annual spring forecast, based on snow surveys made on 1,200 courses in the high mountains of the west, showed that normal runoff is expected in the extreme north and northwest, with a gradual decline in water supply outlook toward the south.

"For the last five years the Columbia Basin on the north and northwest has had above normal snow cover and streamflow, while that to the south and southeast of the basin has been below normal.

"Reservoir storage in the southern portions of the west has continued to decline, pumping of underground supplies increased, and in some areas crop acreage has been reduced and municipal supplies rationed. The forecast said that streamflow in much of this area is as low and the general water supply outlook is as poor as at any time in the past 50 years.

"The snow surveys are made several times each winter by the Soil Conservation Service and cooperating federal, state and private agencies, including the U. S. Forest Service, with forecasts released in cooperation with the U. S. Weather Bureau for irrigation, power, municipal and other water users.

"Based on near-normal temperatures and precipitation from April to June, the water supplies in prospect, by states, are summarized as follows:

"ARIZONA—Snow melt runoff may prove the least since 1904, possibly the least since records began. Water carry-over in reservoirs of the Salt River project will be adequate to meet needs this year. The San Carlos project has a continued shortage of stored water, with about 13 percent of the 10-year average now in storage. Lyman Reservoir on the Little Colorado River stores only 7 percent of capacity, with little prospects of any great improvement. Lake Mead stores less water now than at any time since initial filling.

CALIFORNIA — Water conditions in California April 1, the State Division of Water Resources reported, indicate the 1955 supply will be much below average. Critical conditions are anticipated only in localized areas where development of conservation storage and groundwater basins is behind growth. If near drought conditions continue through another season, water conditions would become acute in many areas. Water content of snow pack varies from 40 to 60 percent of average in the Cascade Mountains and Sierra Nevada. The snow-melt season runoff, assuming normal precipitation during April-June, is expected to be less than that for any year since 1947. Kern River flow may be the lowest since 1934. Major conservation reservoirs serving California areas stored about 44 percent of their total capacity April 1, or 5,800,000 acre feet less than a year ago. Most of this decrease is in Lake Mead. Storage in intrastate reservoirs is about 72 percent of the ten-year average, and the heavy draft is expected to deplete many reservoirs before the irrigation season ends. Water levels in most major groundwater basins will be considerably lower at the end of the 1955 irrigation season than in the fall of 1954.

COLORADO — Summer discharge

of all streams originating in the mountains of Colorado will be less than normal in 1955, but will exceed 1954 on all streams except the Rio Grande. Water supplies in 1954 were near record lows in practically all areas. Because of low carry-over in small irrigation reservoirs, the statewide water supply outlook for 1955 is not much better than a year ago. The lack of stored water will cancel the expected increase in streamflow. Users may be faced with a reduction in their demands for water. Flow forecasts for the North and South Platte and Arkansas Rivers and their tributaries are for about 75 percent normal from April to September. Colorado River drainage forecasts range from near 90 percent of normal on the Upper Colorado, Yampa and White rivers to 65 to 70 percent on the San Juan River and its tributaries. The water supply outlook is fair to good and much better than a year ago in the west slope. Irrigation water in San Luis valley along the Rio Grande will probably be less than in 1954. Forecasts range from 50 to 60 percent of normal. Snow melt runoff will be insufficient to meet all demands.

IDAHO — The water supply outlook for streams in northern Idaho is near normal, but poor in the southern half except along the main stem of the Snake River. Significant increases in the snow pack occured during March in the north, with little change in the south where the shortage is most serious. Critical water shortages are developing in irrigated areas served by the Big and Little Lost Rivers, the Big and Little Wood River, Salmon Falls Creek and Owyhee River. Carry-over storage and the snow pack are very low. The Boise and Payette Rivers have one of the lightest snow packs in years, but reservoir storage will provide adequate irrigation water this year. Carry-over storage next fall will not be adequate for 1956.

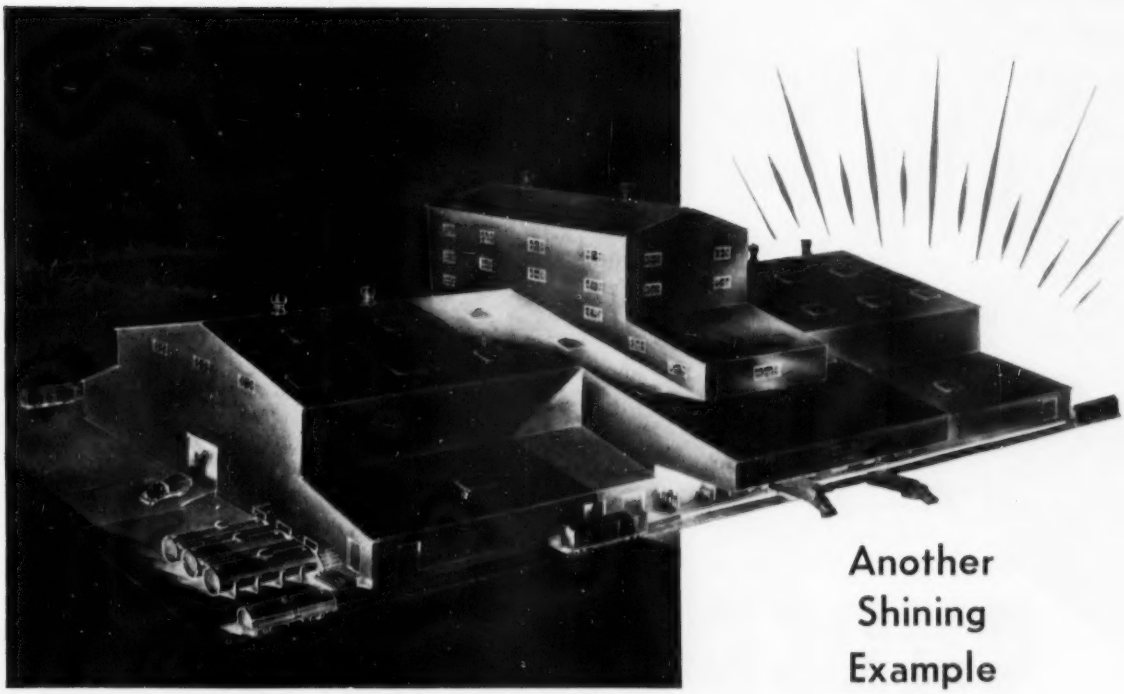
KANSAS—With no water stored in John Martin and Great Plains reservoirs in eastern Colorado, irrigation water along the Arkansas River in western Kansas will be much less than normal. Only heavy rainfall in the Arkansas Valley can improve the situation. Storage in Cedar Bluff Reservoir on the Kansas River is now 94,000 acre feet as compared with 185,000 acre feet of irrigation storage capacity.

MONTANA—Snow pack on the Rocky Mountains feeding the Upper Missouri and Upper Columbia Rivers in Montana is 20 percent below average. Early runoff is expected on both rivers. The April-September flow into Fort Peck reservoir on the Missouri River will be 3,756,000 acre feet, or 77 percent average. The Yellowstone River at Corwin Springs, Montana, should produce 1,714,000 acre feet, or 85 percent of average. On the Columbia River drainage, the Flathead River at Columbia Falls, Mont., is forecast to flow 5,-152,00 acre feet, or 85 percent average. Inflow to Hungry Horse Reservoir on the South Fork of the Flathead River is forecast to be 1,850,-000 acre feet, or 82 percent average. The Clark Fork River should produce approximately 11 million acre feet of water at the Montana-Idaho boundary during April-September—81 percent average.

NEBRASKA — Western areas along the North Platte will be limited to sharing 75 percent normal runoff into Wyoming reservoirs on this stream. Irrigation water shortages seem virtually certain, unless summer rainfall is well above average. Storage in Kingsley and Sutherland Reservoirs is 90 percent of average for April 1, enough to meet normal requirements for the Tri-County irrigated area.

NEVADA — Snow stored water ranges from near normal in a small part of eastern Nevada to poor elsewhere. Winter flow was below normal for all streams. Ground water levels in most valleys are the lowest on record. Storage in irrigation reservoirs on April 1 was 44 percent of capacity and only 67 percent of the 1943-52 ten-year average. Water supply this year will be below normal in all parts of the state. The Humboldt River at Palisades is forecast to flow only 17 percent of normal. Streamflow from the east central portion of the Sierras will range from 50 to 70 percent of normal. Snow cover in the Spring Mountains in southern Nevada is 67 percent normal.

NEW MEXICO—The water supply outlook along the Rio Grande is the poorest in recent years. Streamflow, expected to be even less than a year ago, and water in storage together will supply only a small fraction of the usual water demand. Most of the supply will have to come from underground sources. Storage in El Vado, Elephant Butte and Caballo reservoirs is about 160,000 acre feet, the same as last year. Soils in all irrigated areas are dry. The outlook for the irrigated area near Carlsbad is good. The Pecos River flood last fall filled these reservoirs. Storage is now twice the last ten years' average, three times that of last April 1.



ANNOUNCEMENT

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Another Shining Example of Sackett "TUNED TO THE TRENDS" Engineering SPEEDS

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Superphosphate and mixed goods producers are invited to get our seasoned counsel on their expansion and modernization programs. It is available at no cost.

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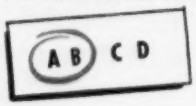
Burlap mills are classified A, B, C, and D. Fulton buys *only* from AB mills, to be sure your finished bags are *never* made from burlap with hidden weakness.



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COTTON CONTROLLED FROM RAW MATERIAL TO FINISH

From the raw cotton to the finished bag, Fulton guards quality. Weight and weave of every fabric are tested to assure uniformity in all bags.

Automatic point-of-sale merchandising... Fulton's fashion prints can tip the scales in favor of YOUR brand when the consumer buys.

FOR TOUGHER JOBS — TOUGHER WPPL BAGS

These waterproof lined textile bags set up a protective barrier between your product and outside conditions. The inner sheets in Fulton WPPL bags are moisture resistant, and also prevent transfer of odors. Your choice of paper or polyethylene laminated to cotton or burlap.

Fulton specialists can recommend which type will do the best job — most economically — for each of your products.

Fulton BAG & COTTON MILLS

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With storage in Conchas Reservoir below normal and slightly below a year ago, Tucumcari Project is expected to have a shortage. Inflow from snowmelt will be negligible.

NORTH DAKOTA — The water supply to irrigated areas along the Missouri River near Williston is good. Storage in Heart Buttee and Dickinson Reservoirs is now standing at 82 percent of capacity. Recent snows improved soil moisture conditions in this general area.

OKLAHOMA—Storage in W. C. Austin Reservoir on the Lugert-Altus Irrigation District is about 12 percent of capacity, near one-half of average. The water supply outlook is poor.

OREGON—Water users can expect only "poor" to "fair" water supplies. Abnormally heavy storms in March increased the snow-pack to 90 percent of average. But exceptionally dry soils will soak up much snowmelt water that otherwise would add to streamflow. Stored water is about half the ten-year average, and about two-thirds that a year ago. Stored water will "save the day" in many eastern Oregon areas this year. Seasonal streamflow will fall below average except in the Umatilla Basin and the Clackamas, Santiam and McKenzie Rivers where flow just slightly above average is forecast. Water supplies will be generally short in Harney Basin, Sprague, Silver Lake, Chewaucan, Guano Lake, Catlow Valley, Alvord Lake, Crooked, Owyhee, Malheur, Burnt, Powder, Pine, Imnaha, Grand Ronde, John Day and Rogue River basins except where stored water alleviates the shortage. The Columbia River, at The Dalles, is expected to flow less than in any of the past ten years.

SOUTH DAKOTA—Runoff into reservoirs in and near the Black Hills should be slightly above normal. Total storage is about three-quarters of the ten-year average. Some shortage is expected for the Belle Fourche project.

TEXAS—Irrigation water will be extremely short in the El Paso area, depending primarily on Elephant Butte Reservoir storage. This area has suffered from water shortage for several years, and less water probably will be available than in 1954. On the Pecos River below Red Bluff Reservoir the outlook is good. The Pecos River flood in New Mexico last fall also filled this reservoir. Pump irrigated areas on the high plains have extremely dry soils due to drought. On the Colorado River, storage is near average in Buchanan and Lake Travis Reservoirs.

UTAH — Since heavy March storms at higher elevations in northern Utah, the prospective water supply is fair to good. Poor conditions still exist in the Bear River Drainage from south of Bear Lake in Utah to the Grace-Soda Springs area in Idaho. Bear River at Harer is forecast at 51 percent of average. A small area along the Wasatch Front in the Ogden-Farmington area also faces deficient water supplies. With minor exceptions, central and southern Utah can expect a deficient water supply, becoming critical along the Sevier River if spring months are dry. A greater than usual amount of the snow pack will be needed to saturate the watersheds before runoff begins. Storage in 14 reporting reservoirs is 78 percent of last year, 90 percent of average, and 51 percent of capacity.

WASHINGTON — Snow pack in the state and on headwaters of streams originating in adjacent states is 91 percent of normal April 1, and 18 percent increase since March 1. Spring precipitation has been unusually heavy, but dry soil moisture conditions in the mountains are expected to further reduce this summer's runoff. Forecasts for April-September range from 80 to 95 percent of normal. All irrigation reservoirs have excellent carry-over storage. The five Yakima River Reservoirs hold 76 percent of capacity, as compared with a ten-year average of 65 percent. Nine irrigation reservoirs with a total capacity of 2,654,000 acre feet have 1,039,000 acre feet in storage, slightly less than the April 1 average of the past ten years.

WYOMING—Snow cover is 20 percent below normal for the state as a whole. Soil moisture under the mountain snow is somewhat below normal, and forecasts of streamflow are 5 to 20 percent lower than the snow cover would indicate. Storage in all reservoirs is only 40 percent of capacity and 50 percent of the past ten-year average. Shortages are most critical in the North Platte and Laramie watersheds. Most of the 950,000 acre feet in North Platte Reservoirs is assigned to the new Alcova Project and is not available for the North Platte irrigated district in eastern Wyoming and western Nebraska. Summer rainfall must be well above normal, if shortages are to be avoided. The outlook is similar to that of 1954. Wheatland district has no carry-over irrigation water. Irrigation supplies along the main streams in northern Wyoming should be adequate in 1955. Outlook on the east side of the Big Horn Mountains was substantially improved by an ususually heavy snowstorm April 1.

USDA Reports Wind Damage In Southern Great Plains

The U. S. Department of Agriculture reported that as of April 20 more than 13 million acres of land in seven Southern Great Plains States had been damaged by wind erosion since last November. This is 3 million acres more than were reported as of April 1. These estimates are based on information compiled by the Soil Conservation Service.

In addition to more than 13 million acres damaged so far this season, the April 20 report showed that another 19 million acres were in condition to blow. These 19 million acres lacked adequate vegetative cover to prevent soil blowing if high winds and drought persist through the late spring and early summer.

More than 11 million acres of the land damaged were in the five southern States of the Great Plains—eastern Colorado, western Kansas, western Oklahoma, western Texas, and eastern New Mexico. Also, more than 15 million acres in condition to blow were in this area. The balance of land damaged and that in condition to blow lies mainly in southeastern Wyoming and southwestern Nebraska.

Connecticut AES "Jones Days" Scheduled

The annual Field Day of The Connecticut Agricultural Experiment Station will be held this year on August 16 at the Station's Experimental Farm in Mt. Carmel, and will be designated as "Donald F. Jones Day," according to an announcement by James G. Horsfall, Director. Field Day this year will highlight the research of Dr. Jones, head of Genetics Department at the Station, who developed in 1917 the world's first method for producing hybrid corn seed.

Former Vice-President and former Secretary of Agriculture, Henry A. Wallace, will be the principal speaker. Mr. Wallace had much to do with making hybrid corn practical. In his talk he will touch upon the benefit of hybrid corn to the world.

Fulton Supplies "Real" Look

Animals that look alive . . . flowers that look fresh . . . buildings that look like real buildings! These are a few of the enthusiastic comments made at a preview showing of Fulton Bag & Cotton Mills' new, improved method of reproducing pictures on multiwall paper bags. This new process known as Ful-Tone printing, permits the reproduction of more natural, lifelike pictures than was heretofore possible using older methods of printing. The development is the result of months of combined experimentation by Fulton's art, platemaking and printing departments.

According to J. Frank Greeley, Fulton's Director of Multiwall Sales, the Ful-Tone technique is particularly suited to providing more realism in pictures of animals. It emphasizes textures such as the soft feathers of poultry, the curly hair of sheep and cattle, and the coarse bristles and hair of swine and horses. However, Greeley added, Ful-Tone is equally adaptable in adding realism to pictures of persons, scenes or any pictorial subject used on multiwall bags.

"Next to realism," said Greeley, "Ful-Tone's outstanding sales feature is that all pictures look equally as sharp and clear from a distance of a few inches as they do from a distance of several feet. This is particularly important from the point of view of store display where customers view products both from a distance as well as from close-up before making their purchase." Other features of Ful-Tone are the utilization of brighter printing ink colors and no increased cost.

In addition to Ful-Tone printing, Fulton is also offering half-tone printing to those who desire it. Samples of both types of printing are available from all Fulton salesmen and offices.

J. Frank Greeley

Baughman Announces New Florida Division

The Baughman Manufacturing Company, Jerseyville, Illinois, manufacturers of conveying and spreading equipment, has announced the opening of a new division in Lakeland, Florida, under the management of Wm. Jones.

The full address is: Baughman Mfg. Co., Inc., Florida Division; Route 92, New Auburndale Road; P. O. Box 2415, Dixieland Station; Lakeland Florida.

The Division will handle the full Baughman Manufacturing Co. line.

Safety

THOMAS J. CLARKE, *Chairman*
Fertilizer Industry Section
National Safety Council

←Tom Clarke is controller of the Fertilizer Division of G.L.F. Exchange at Ithaca, N. Y. Included in Tom's department is responsibility for personnel management; employee education; and safety. Tom was instrumental in organizing and supervising his division's safety program. With G.L.F. for 18 years, he has been in charge of accident prevention work since his return from the service in May, 1945.
Tom Clarke is interested in many civic projects; among them: Community Chest; Red Cross; and Boy Scouts of America. He was named Young Man of the Year in Ithaca for 1948. He was awarded the Bronze Star medal for meritorious service with the U. S. Army, overseas.
Tom is a director of Kiwanis; a member of the Ithaca Chamber of Commerce, the American Society of Safety Engineers, and the Society for the Advancement of Management.

EXECUTIVE COMMITTEE MEETING

Fertilizer Section
National Safety Council
Roanoke, Virginia
June 12, 1955

AGENDA

9:30 A.M.—Opening Remarks, T. J. Clarke.

Sectional Progress—New Orleans (Southern States), C. A. Cox; North Carolina, W. Creel; Florida, W. Stone; Central States, J. Smith; Virginia, V. Gornto; Western States.

Committee Progress

Engineering—A. B. Pettit; Statistics & Contest, W. High; Data Sheet, J. Roszel; Pesticide Mixes, J. P. Hughes.

Public Relations—J. L. Shopen; Trade Press, J. L. Shopen; Newsletter, T. J. Clarke.

Membership—V. Gornto.
Visual Aids—E. O. Burroughs.
Speakers Bureau—H. Kreuger.
Motivation Study—R. Hugg.
Insurance—G. Pelton.
Research—R. G. Diserens.
Nominations—V. Gornto.

The Three Year Plant — T. J. Clarke.

Industrial Conference Report—T. J. Clarke.

Status of Safety Rule Book—J. C. Kato.

New Personnel Appointments—T. J. Clarke.

Chicago Congress in October—C. A. Cox.

Cooperation With Trade Associations—

Site For Next Meeting—C. A. Cox.

Open Forum For New Business— General Discussion. Plans For The Future.

TENTATIVE PROGRAM OF THE TWENTY-FIFTH ANNUAL N. C. STATEWIDE SAFETY CONFERENCE AND EXHIBIT

Robert E. Lee Hotel
Winston-Salem, N. C.
May 18, 19, 20, 1955

FERTILIZER SECTION

Thursday, May 19
Two-Fifteen P.M.
Education Bldg., Room 35
First Presbyterian Church
Cherry Street at Third Street

Chairman—W. C. Creel, Safety Director, N. C. Department of Labor, Raleigh, N. C.

1. "Current Problems in Fertilizer Safety—Local and National"—Curtis Cox, Assistant Manager Manufacturing Department, Virginia-Carolina Chemical Corp., Richmond, Va.

2. "Keeping Safety Programs Alive"—Vernon Gornto, Safety Director and Manager Insurance Depart, Smith-Douglas Co., Norfolk, Virginia.

3. "What We Do In Fertilizer Safety"—Ed Burroughs, Safety Director and Manager Insurance Department, F. S. Royster Guano Co., Norfolk, Virginia.

4. "Recent Research Findings In Safety"—Dr. D. J. Moffie, Head Psychology Department, North Carolina State College, Raleigh, N. C.

Discussion Period.

Virginia Safety Conference June 3

A seminar-lecture type program will feature the fertilizer section meeting of the Virginia Safety Association at their 21st annual meeting to be held at the Jefferson Hotel, Richmond, June 2-4. Ralph J. Crosby, Marsh & McLennan, will have charge of the entire program.

ONE DAY LECTURE—SEMINAR

VIRGINIA STATE SAFETY ASSOCIATION

Richmond, Va. June 3, 1955

MORNING

10:00 The Relationship of Accident Prevention To Performance Efficiency. Why accident prevention is truly a function of supervisors.

The Basic Principles Of Successful Accident Prevention. The information that supervisors should have about accidents. The factors involved in the occurrance of an accident.

The Importance Of Accident Investigation. Other sources of information on accident causes.

12:30 Lunch.

AFTERNOON

2:00 The Opportunities That Supervisors Have To Eliminate Accident Causes. Check Observations. Maintaining employee interest.

The Avenue Of Approach To Correction Action. What the supervisors can contribute.

The Qualifications Of A Supervisor Applied To Accident Prevention. The development of basic qualifications through active participation in accident prevention.

4:30 Adjournment.

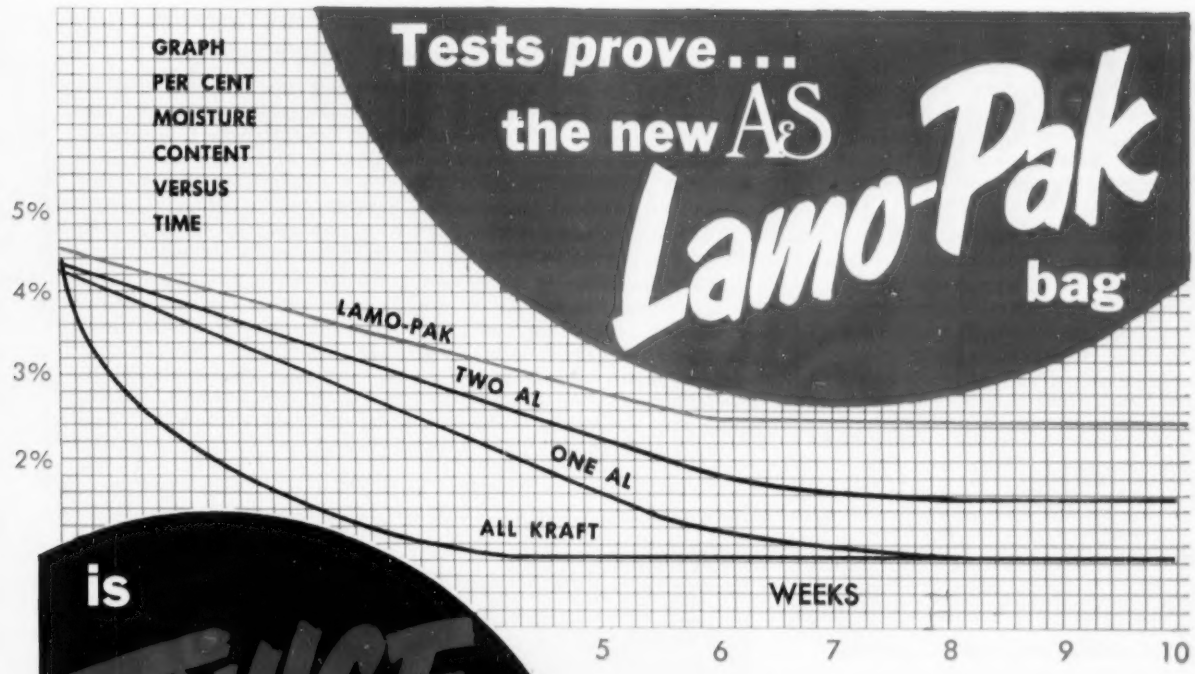
N. C. Reduces Injury Rate 47%

According to the North Carolina Department of Labor, the lost time injury frequency rate has been reduced from 18.6 for 1952 to 9.8 for 1954, a 47% reduction, as the result of the safety drive which has been conducted by the fertilizer industry in that state.

Safety Barbeque

The Coronet Phosphate Company, a Division of the Smith-Douglass Co., Inc. of Norfolk, Virginia, recently entertained its employees with a barbeque supper for achieving a record of over six months without a lost-time accident. The two plants, Coronet and Tenoroc, were each presented with Certificates of Merit commending them for their fine work.

Special guests for this occasion were safety directors from the various phosphate mines in the immediate area. Shown here are: left to right, Leo Taylor, Swift & Co., James Fuqua, American Cyanamid, Gene Terry, Davison Chemical Corp., Glenn Kennedy, A.A.C. Co., and B. J. Phillips, Coronet Phosphate Co.



Tests *prove*... the new A&S Lamo-Pak bag

is TWICE as effective a moisture barrier!

and LAMO-PAK costs 10% less than double-asphalt-laminated kraft!

Photograph shows how product packaged with LAMO-PAK retains original moisture content and does not cake up. Note how caking of product due to excessive moisture-loss results from packaging with double-asphalt-laminated kraft.

■ Impressive tests recently run by independent laboratory show that the new Arkell and Smiths LAMO-PAK moisture barrier sheet is up to 50% more effective in retaining moisture content—and equally effective with hygroscopic products in keeping moisture out!

LAMO-PAK has plus values over both a single ply and two plies of asphalt laminated paper!

LAMO-PAK — a newly developed laminate sandwiched between two sheets of lightweight kraft — will protect products negatively affected by moisture changes. LAMO-PAK has these *plus* advantages over asphalt laminated kraft:

- ★ economical!
- ★ less paper stiffness!
- ★ up to 50% greater moisture protection!
- ★ easier closure operation!

A & S — backed by close to a century of manufacturing "know-how" — inspires confidence as it spearheads the search for valuable new packaging materials. ARKELL & SMITHS means top-flight designing, quality printing, laboratory-controlled production . . . guaranteed every time!

ARKELL and SMITHS

For additional information on A & S Lamo-Pak, write to Arkell and Smiths, Packaging Division, Canajoharie,

PLAIN or PRINTED | **BAGS** **ENVELOPES** **WRAPS** **ROLLS**

Bag-Making Plants at: CANAJOHARIE, N. Y. · WELLSBURG, West Virginia · MOBILE, Alabama · HUDSON FALLS, N. Y.

SALES OFFICES IN ALL PRINCIPAL CITIES

CF Given Safety Award

The National Safety Council May 3 announced Commercial Fertilizer and Plant Food Industry as one of the recipients of its Public Interest Award for the second consecutive year.

The noncompetitive award is made annually to public information media for exceptional service to safety. Said Ned H. Dearborn, Council president: "The media people are tackling the accident problem with vigor, imagination and initiative, and they are interpreting it to the public in a way that is influencing behavior."

Allied Sets Up Safety Contest

A company-wide safety contest has been set up by the Allied Chemical & Dye Corporation. The contest is not between the various divisions, but between units, plant against plant, mine against mine, laboratory against laboratory, without regard for divisional lines.

St. Regis Announces New Bag Closure

St. Regis Paper Company announces that following two years of research and production trials, it has developed a stronger, more economical multiwall bag closure utilizing rayon thread and flat kraft tape. This closure is available on St. Regis sewn valve bags and factory-closed ends of open mouth bags. In cooperation with rayon manufacturers, St. Regis has developed several weights and types of rayon thread which can be used on sewn bags instead of plain cotton thread.

New Information On Elevator Buckets

If you are designing a new bucket elevator or thinking of increasing the capacity of your present installation, the new folder on Link-Belt's line of "HS" (High Speed) elevator buckets will be of interest.

It contains such valuable information as recommended head and boot designs, a "quick check" elevator capacity chart and recommended belt widths for single, double, triple and quadruple rows of buckets. One chart gives recommended pulley diameters and belt speeds, and another gives specifications on the "HS" bucket line.

For your copy of this folder (No. 2548) write to Link-Belt Company, Dept. PR., 307 N. Michigan Ave., Chicago 1, Ill.

ACCIDENTS DON'T "HAPPEN"

If all of us will accept, wholeheartedly, the principal that all accidents are CAUSED, and will assume responsibility for the prevention of accidents in our own sphere of activities, the greatest percentage of our accidents would be eliminated. Accident Prevention is everybody's business. No one can become a skilled foreman or worker on any job, without learning the hazards and adhering to SAFE PRACTICES. In other words, those who have not learned to do their job the SAFE way, have not learned to do their job—period.

A large number of our accidents are due to workers indulging in minor, careless habits that are usually committed many times before an accident occurs. Prompt action by the Supervisor in correcting and eliminating these unsafe acts is the only way to prevent them from eventually causng accidents. You will find that employees on the job do not resent SAFETY RULES and REGULATIONS, as such, rather they resent the method by which the rules are given.

Vernon S. Gornto—in a bulletin to Plant Supervisors of Smith-Douglass Co.

Plantrons, new high-analysis, soluble lawn and garden fertilizer in bead form, is being offered by Olin Mathieson in 10-lb. and 25-lb. containers that double as spreaders. The detachable heavy wire handle comes with each package.

A new row planter attachment which eliminates mixing of insecticides with fertilizer and accurately applies dry granular insecticides as you plant has just been announced by the E. S. Gandrud Co., Inc. of Owatonna, Minnesota. Developed and tested throughout 1954 by the manufacturers of nationally-known Gandy fertilizer spreaders and seeders, the new attachment mounts on either 2- or 4-row planters to place dry chemical insecticides with the fertilizer in the row.

Designed to mount between seed cans, the new Gandy attachment delivers accurately metered quantities of dry granular chemicals to the fertilizer boots through flexible metal tubes. A gauge on the chemical hopper allows setting of various application rates.

The new Gandy dry chemical attachment is available for the common makes of corn planters, both two row and four row, and is easily adapted for other planting tools such as listers.

Classified Advertising

For Sale, Exchange and Wanted Advertisements, same type now used, EIGHT CENTS a word for one insertion; TWELVE CENTS a word for two insertions; FIFTEEN CENTS a word for three insertions, and FOUR CENTS a word for each insertion more than three; ADVERTISEMENTS FOR THIS COLUMN MUST BE PAID IN ADVANCE.

PLANT SUPERINTENDENT AVAILABLE. years of experience in acidulating and dry mix Plants as Superintendent. If you want a good man, write Box 15, Commercial Fertilizer, 75—3rd St., N. W. Atlanta, Ga.

FOR SALE: Rotary Dryers 5′ x 30′, 5′ x 40′, 4′6″ x 50′, 5′ x 67′, 6′ x 60′, 9′ x 80′. (1) Pressure Tank 13,000 gal. 220#. Also Mixers, Storage Tanks, Screens, Elevators. Send us your inquiries. Brill Equipment Company, 2402 Third Ave., New York 51, N. Y.

WANTED: Plant superintendent experienced in production of Sulphuric acid, Superphosphate and mixed Fertilizers. Plant located in the South Box 14, c/o Commercial Fertilizer, 75—3rd St., N. W. Atlanta, Ga.

FOR SALE: (5) 15,000 gal. Vertical Welded Steel Tanks with coils. Can furnish Agitators and drives. (12) 3000 gal. Horiz. Aluminum Tanks. (9) Rotary Kilns and Dryers: 7′ x 60′, 5′ x 30′, 4′6″ x 40′, 10′6″ D x 105′, 4′ x 25′. Also Pulverizers, Mixers and Conveying Equipment. Perry Equipment Corp. 1426 N. 6th St., Philadelphia 22, Pa.

FOR SALE: Forty-ton Sturdevant Acidulation Unit. In operation two years, nearly complete unit, good condition. Inquire Buhner Fertilizer Company, Box 152, Danville, Ill.

FOR SALE: Hough Payloader. Used very little. Mechanically excellent condition, completely overhauled. Engine steam cleaned. Write for price F. O. B. St. Joe, Mo. Box #18, c/o Commercial Fertilizer, 75—3rd St., N. W., Atlanta, Ga.

SITUATION WANTED: Plant superintendent thoroughly experienced in the operation and maintenance of dry mix and acidulating plants. Box #17, c/o Commercial Fertilizer, 75—3rd St., N. W., Atlanta, Ga.

FOR SALE: Brand new Chattanooga acid phosphate cart wheels — bargain price. Blount Fertilizer Co., Greenville, N. C.

FOR SALE: Fertilizer Plant complete with new granulating unit. Capacity 10 ton per hour. Sell on terms. P. O. Box 1251, Sioux City, Iowa

WANTED: Graduate chemical engineer with mechanical background or ability. Prefer someone experienced in continuous ammoniation and granulation. Should be willing to work right in the plants during development. Location in Mid-Northwest with fast growing company now operating two plants. Opportunities are excellent. Box #20, c/o Commercial Fertilizer, 75—3rd St., N. W. Atlanta, Ga.

Index to Advertisers

GIANT SERVANT OF AGRICULTURE

Time to Plant

Someone once remarked—tomorrow should be a busy day, so much has been put off until then!

Out of an entire year, there are only a few days when a farmer plants. That's why we are geared to meet our customers' immediate requirements.

P.C.A.
The SALT of the EARTH
RED MURIATE

POTASH COMPANY OF AMERICA
CARLSBAD, NEW MEXICO.

General Sales Office . . . 1625 Eye Street, N.W., Washington, D.C.
Midwestern Sales Office . . . First National Bank Bldg., Peoria, Ill.
Southern Sales Office . . . Candler Building, Atlanta, Ga.

Engineered

to meet modern PRODUCTION REQUIREMENTS

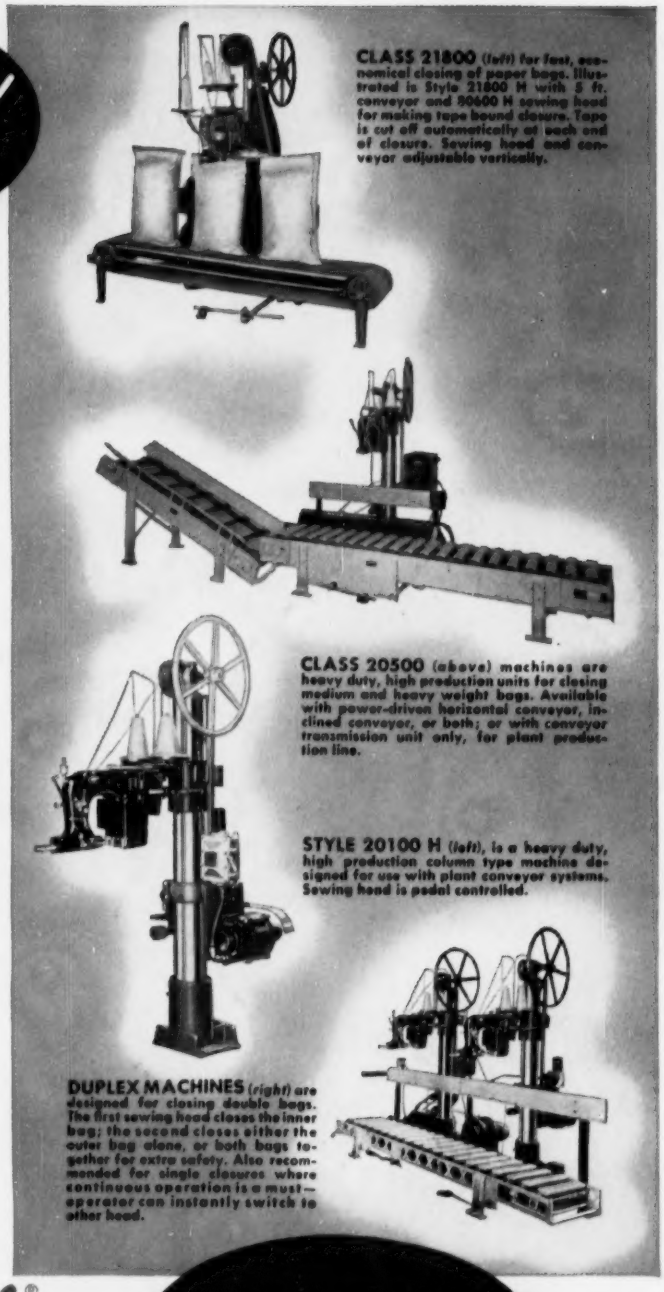
NO two jobs are exactly alike — that's why Union Special builds a wide variety of bag closing equipment. In the Union Special line you will find machines for closing all sizes and kinds of bags from small textile or paper bags of one pound, or less, up to the largest multiwall paper bags in use today. Whether your production schedule calls for closing just a few bags or for high continuous output, Union Special can supply the equipment to do the work efficiently, economically, dependably!

Coupled with a complete line of equipment is Union Special's vast background of experience and technical know-how that insures customers of getting THE RIGHT MACHINE FOR THE JOB!

Union Special representatives located in all leading industrial centers are qualified by experience and training to give you expert recommendations. Take advantage of the service they offer.

Ask for recommendations. UNION SPECIAL MACHINE CO., 412 North Franklin St., Chicago 10, Illinois.

Send for Bulletin 200



CLASS 21800 *(left)* **for fast, economical closing of paper bags. Illustrated is Style 21800 H with 5 ft. conveyor and 20600 H sewing head for making tape bound closure. Tape is cut off automatically at each end of closure. Sewing head and conveyor adjustable vertically.**

CLASS 20500 *(above)* **machines are heavy duty, high production units for closing medium and heavy weight bags. Available with power-driven horizontal conveyor, inclined conveyor, or both; or with conveyor transmission unit only, for plant production line.**

STYLE 20100 H *(left)*, **is a heavy duty, high production column type machine designed for use with plant conveyor systems. Sewing head is pedal controlled.**

DUPLEX MACHINES *(right)* **are designed for closing double bags. The first sewing head closes the inner bag; the second closes either the outer bag alone, or both bags together for extra safety. Also recommended for single closures where continuous operation is a must — operator can instantly switch to other head.**

Union Special®

BAG CLOSING MACHINES